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The Motives of Fatherhood and Sonship in the Novels "Ulysses" by J. Joyce, "Murphy" by S. Beckett and "At Swim-Two-Birds" by F. O'Brien

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Анотація. У статті вивчено образи «синів», їхніх духовних батьків (патронів) та рідних батьків. У «Мьорфі», «Про водоплавних» виявлено рецепцію «уліссівських» образів «сина» і «батька». Досліджено специфіку і характер взаємин «батька» і «сина», складні, двоїсті почуття обох.

Пошуки духовного батька, так само як і пошуки духовного сина, у «Мьорфі» і «Про водоплавних» інтерпретовані пародійно. Почуття «батька» до «сина» і навпаки складні й суперечливі, «батько» має стосовно «сина» приховані мотивації. Питання синівства викликає в «батьків» складний комплекс і спектр почуттів; також є причини, які утримують «синів» від возз'єднання з духовним батьком, їхні суперечливі почуття щодо замісника «батьків», корисливий інтерес «батька» отримати успішного спадкоємця. Мотив пошуку синівства, один із ключових мотивів роману Дж. Джойса, карнавалізовано у «Мьорфі» і «Про водоплавних». Вибір дядька на роль замісника батька у «Мьорфі» і «Про водоплавних» теж може відсилати до образу Гамлета і його дядька, що також створює алюзію до Стівена з його теорією про Гамлета. Головний герой «Мьорфі» мріє про долю дантового Белакви, головний герой «Про водоплавних» отримує докори у лінії від дядька. С. Беккет і Ф. О'Брайєн проводять контр-«уліссівський» експеримент: залишають у вакуумі сімейних стосунків головного героя і його дядька, створюючи умови для їх зближення, однак возз'єднання не відбувається. У фіналі «Улісса» «батько» і «син» відмовляються від ідеї возз'єднання. «Мьорфі» завершується смертю Мьорфі, що обіграє смерть Христа, у псевдощасливому фіналі роману «Про водоплавних» стосунки «батька» і «сина» стають теплими й близькими.

Ключові слова: амбівалентність почуттів; «возз'єднання»; Джеймс Джойс; «патрон»; пошук батька; пошук сина; Семюел Беккет; Фленн О'Брайєн.

Abstract. The article studies the characters of "sons", their spiritual fathers (patrons) and their parents. In "Murphy", and "At Swim-Two-Birds" the perception of "Ulysses's" characters of the "son" and the "father" has been revealed. The specificity and nature of the relationship between the "father" and the "son", the complex, ambivalent feelings of both are studied.

The search for a spiritual father, as well as the search for a spiritual son, were interpreted parodically in "Murphy" and "At Swim-Two-Birds". The feelings of the "father" to the "son" and vice versa are complex and contradictory, the "father" has hidden motivations for the "son". The issue of sonship makes the "parents" feel a complicated complex and spectrum of feelings; there are also reasons that keep the "sons" from reuniting with their spiritual father, their conflicting feelings about the substitute "fathers", the vested interest of the "father" to be a successful heir. The motive for finding sonship, one of the key motives of the Joyce's novel, is carnivalized in "Murphy" and "At Swim-Two-Birds". The choice of an uncle for the role of father's

substitute in “Murphy” and ”At Swim-Two-Birds” can also refer to the characters of Hamlet and his uncle, which also creates an allusion to Stephen with his theory of Hamlet. The main character of “Murphy” dreams of the fate of Dante’s Belakva, the protagonist of ”At Swim-Two-Birds” receives reproaches in laziness from his uncle. S. Beckett and F. O’Brien conduct a counter-”Ulysses’s” experiment: they leave in the vacuum the family relationships of the protagonist and his uncle, creating conditions for their rapprochement, but no reunion takes place. In the finale of ”Ulysses”, the “father” and the ”son” abandon the idea of reunion. “Murphy” ends up with the death of Murphy’, who overcomes the death of Christ, and in the pseudo-happy ending of the novel ”At Swim-Two-Birds” the relationship between the “father” and the ”son” becomes warm and close.

Keywords: ambivalence of feelings; ”reunion”; James Joyce; ”patron”, search for father; search for son; Samuel Beckett; Flann O’Brien.

ВСТУП

Ірландських письменників С. Беккета (1906–1989) і Фленна О’Брайєна (1911–1966) вважають учнями Джеймса Джойса (1882–1941), з «Улісса» якого вони багато чого перейняли: мотиви мандрів, батьківства, тілесності, негативне ставлення до ірландського провінціалізму, католицтва, карнавальність, техніку потоку свідомості та ін.

У романі Дж. Джойса «Улісс» (1922) мотив батьківства і синівства є ключовим. Російський джойсознавець і перекладач «Улісса» С. С. Хоружий, говорячи про зв’язок роману Дж. Джойса й «Одіссеї» Гомера, стверджує, що «<...> ідейний світ роману поділяє з «Одіссеєю» всього дві або три спільні теми: це тема синівства і батьківства, тема повернення, а також <...> тема жіночої природи й жіночої місії» [1, с. 113]. Роль стосунків батька і сина в «Уліссі» також досліджували Н. Маккендрік і Дж. МакКендрік [2], Дж. О’Лірі [3], К. Хоппер [4], Р. Уолш [5], які вивчали особливості наслідування в романі Дж. Джойса образу гомерівського Одіссея-батька, специфіку стосунків Стівена Дедала і Леопольда Блума в «Уліссі», тематику пошуків духовного батьківства.

При цьому дослідники зауважують, що характер стосунків батька і сина в Гомера і Дж. Джойса кардинально різні. С. С. Хоружий наголошує, що «У Гомера між батьком і сином – непохитна прив’язаність і любов, а тема повернення вирішується в оптимістичному ключі, в елементі сили і з вірою у відданість. У Джойса між батьком і сином – складна діалектика стосунків, де є і надрив, дисгармонія, ворожнеча; а тема повернення вирішується в песимістичному ключі, в елементі слабкості й із впевненістю у зраді» [6, с. 113].

Український дослідник І. І. Гарін відзначає, що «Увесь зміст «Улісса» – в єдиній миті близькості Блума, смішного, комічного персонажа, до Стівена, якого він витяг з п’яної бійки. У Блума помер син. У Стівена, втім, батько живий. Але справа, звісно, не в цьому: важливе духовне батьківство» [7, с. 241].

Російський міфолог Є. М. Мелетинський вважає, що «Стосунки «батько – син», «мати – син» і т. ін., як і тема «батьківства» в широкому розумінні (сюди входить своєрідне трактування творчості Шекспіра Стівеном, який порівнює митця з богом-батьком, і багато інших мотивів), займають в «Уліссі» велике місце, але ніяк не зводяться до пригнічених інфантильних сексуальних комплексів, їх «фройдизм» доволі поверхневий» [8, с 303]. Із ним погоджується С. С. Хоружий: «Джойс, ми пам’ятаємо, завжди відмежовувався від фройдизму, і помітних ознак едипового комплексу ми в нього не знайдемо ні в житті, ні у творчості» [1, с. 226–227]. Однак, як зазначає І. І. Гарін: «Що ж до Фройда, то достатньо вказати центральний момент [«Улісса»]: як би не різнились рішення, але вже сама тема батьківства як нерозривного, але й болісного зв’язку, амбівалентної симпатії-антипатії батька і сина, – важливе зближення Джойса з нелюбимим «Шалтаєм»» [7, с. 181] (Дж. Джойс називав З. Фройда і К. Ґ. Юнґа «<...> австрійським Шалтаєм і швейцарським Болтаєм» [6, с. 59].)

Голландський дослідник С. Гупперманс акцентує на тому, що «Відсутність батька <...> визначає хід подій у «Мьорфі». Персонажі, які представляють батьківський вплив, звісно, з’являються у «Мьорфі», але в ослабленій і сатиризованій формі. Стосунки батька і сина відлунюються у зв’язку Нієрі зі своїми

студентами. <...> Батьківство також скромно представлено Вілоубі Келлі, дідом Силії, чий вплив підривається фізичною і розумовою слабкістю» [9, с. 74].

Ірландський дослідник К. Хоппер наводить думку літературознавців П. Костелло і П. ван де Кампа, біографів Ф. О'Брайєна, щодо постаті батька в романах письменника: «Може бути знаковим <...>, що в романах О'Нолана (справжнє ім'я Ф. О'Брайєна – примітка автора) немає батьків, яких можна ідентифікувати як батьків, тільки дядьки або брати. <...> Можливо, батько, відсутній у його реальному світі, був стертий із його художнього світу. А можливо, О'Брайєн був занадто близький із батьком, щоб помістити його у вигаданий світ» [4, с. 74]. Також К. Хоппер стверджує, що стосунки «дядько/оповідач» у романах «Про водоплавних» (1939) і «Важке життя» (1961) є «<...> частиною О'Брайєнової пародії на подібні стосунки в «Дублінцях» (1914) Джойса, і сама структура цих стосунків також нагадує динаміку між Стівеном і Саймоном Дедалами в «Портреті митця замолоду» і в «Уліссі», <...> що важливо, так це центральна роль, яку грають ці персонажі й незлагода у їх (дядьків – примітка автора) стосунках із головним героєм-оповідачем» [4, с. 75].

Однак, попри все вищезгадане, зіставлення стосунків «батька» і «сина» в «Уліссі», «Мьорфі» (1938) С. Беккета і у «Про водоплавних» (1939) Ф. О'Брайєна донині не було об'єктом повноцінного літературознавчого дослідження.

Актуальність нашої статті зумовлена тим, що відсутні спеціальні розвідки, у яких були б вивчені специфіка й характер взаємин головного героя з батьком у романах Ф. О'Брайєна і в «Уліссі», встановлені ремінісценції, які давали б змогу ширше поглянути на інтертекст романів С. Беккета і Ф. О'Брайєна, розвиток ними джойсівських мотивів батьківства й синівства.

Мета роботи – визначити характер і специфіку наслідування джойсівських мотивів батьківства і синівства («Улісс») у «Мьорфі» С. Беккета і «Про водоплавних» Ф. О'Брайєна, виявити особливості рецепції образу батька або тих, хто його заміщує. Метою передбачено пошук і опредметнювання ремінісценцій у романах «Мьорфі» і «Про водоплавних» до образів батька і сина в «Уліссі», дослідження принципів рецепції цих образів і мотиву синівства.

РЕЗУЛЬТАТИ ДОСЛІДЖЕННЯ

В «Уліссі» в ролі батька виступає Леопольд Блум, а в ролі сина – Стівен Дедал. Стівен, 22-річний студент, має рідного батька – це Саймон Дедал, прототипом якого був батько Дж. Джойса Джон Джойс [1, с. 773]. Блум перебуває в пошуку духовного сина, оскільки його власний син Руді помер новонародженим за десять років до зображуваних подій, туга за ним весь час переслідує Блума. Стівен, у свою чергу, шукає духовного батька, адже відчуває відстороненість і байдужість рідного батька, Саймона Дедала, соромиться його, бо той опустився і став п'яницею. Про зосередженість Стівена на пошуку батька свідчить його теорія, згідно якої «Гамлет, чорний принц, це Гамнет Шекспір» [10, с. 199], син Вільяма Шекспіра, а привид – сам Шекспір.

Блум прагне знайти духовного сина, Стівен – духовного батька, але зустрівшись, вони не поріднюються, а розходяться. Для Блума батьківство обтяжене трагічними спогадами про свого батька і сина. Що ж стосується Стівена, то він ставиться до Блума як до малознайомої людини, до того ж неповноцінного ірландця – єврея і вихреста.

Однак, однією з причини їх «невозз'єднання» може бути й складне ставлення Дж. Джойса до самої теми повернення («Ключовий мотив «Одіссеї», повернення» [1, с. 894], «І повернутись – це найгірше з усього, що ти можеш вигадати <...> [10, с. 562]). Повернення до ролі батька викликає у Блума внутрішній спротив. Хоча він і проявляє щодо Стівена увагу й опіку, їхнє спілкування не має наслідків, після прощання зі Стівеном «<...> він <...> жодного разу не промайнув в думках хазяїна» [10, с. 903]. Про внутрішній спротив Блума його «возз'єднанню» зі Стівеном можуть свідчити й думки Блума після домовленості про уроки італійської мови від Стівена – для дружини Блума і про уроки вокалу від Моллі – для Стівена: «Що робило для Блума проблематичною реалізацію цих взаємо-самовиключних пропозицій? Непоправність минулого: одного разу на виставі цирку <...> промітний блазень у пошуках своїх батьківських коренів подався з арени в публіку, <...> і гучно проголосив, на

радість глядачам, що той (Блум) його (блазня) рідний татусь» [10, с. 603].

Крім того, Блум тужить за своїм сином Руді й увесь час відчуває порожнечу від його відсутності: «От якби маленький Руді вижив» [10, с. 84]. Прийняти Стівена за сина для Блума значило б прибрати Руді з його синового місця й «зрадити» його.

У той же час батьківство як тема в романі пов'язане і з батьком самого Леопольда Блума, Рудольфом Блумом: він наклав на себе руки після смерті своєї дружини. Всі ці чинники утворюють для Леопольда Блума складний комплекс батьківства й спектр суперечливих почуттів, які викликає в ньому ця тема.

Ще однією річчю, яка розділяє Леопольда Блума і Стівена, є релігія та національність: «<...> чотири сили, що їх розділяли? Ім'я, вік, національність, віросповідання» [10, с. 586]. Стівен Дедал, як і переважна більшість ірландців, католик, батько Леопольда Блума сповідував іудаїзм, а «Рудольфа Вірага (згодом Рудольфа Блума) навернено з юдаїстської віри» [10, с. 622]. Спирання на внутрішній іудаїзм для Блума зумовлене тим, що в Ірландії, де католицизм є домінуючим і має неабиякий вплив в усіх царинах життя людини, до нього ставляться як до «неповноцінного» ірландця й католика, оскільки він вихрест. І Стівен тільки посилює це почуття неповноцінності у Блумі, поглиблює цю відмінність між ними, заспівавши при ньому баладу про хлопчика, вбитого під час єврейського ритуалу: «Чому господар зажурився? Він бажав, щоб оповідь про скоєне була розказана про скоєне не ним (не Стівеном, Блум не чекав такого від нього – примітка автора)» [10, с. 599].

Проте, наявність у Стівена справжнього батька – Саймона Дедала – і ірландсько-католицький побутовий антисемітизм Стівена утримують їх на відстані один від одного й заважають їхнім думкам про «всиновлення». Блум, як вихрест і «неповноцінний» ірландець, відчуває свою меншовартість у порівнянні з іншими ірландцями. Через це Блум скутий, і можливо, тому його допомога й опіка, його настанови Стівенові видаються казенними й схожі радше на міщанське повчання й моралізаторство, аніж на слушні поради: «Не паліть. Краще поїжте» [10, с. 495], «Ви повинні більше споживати справжньої їжі» [10, с. 547].

До того ж у ставленні Блума до Стівена присутній і меркантильний інтерес: «Рої утопічних планів металися в його (Блума) невгамовному мізку. Освіта (справдешнього високого рівня), література, журналістика, оповідання на конкурси, сучасна реклама, гідроконцертні тури по англійських курортах і водах, де повно театрів, із загрібанням грошей <…>» [10, с. 568].

Блум заздрить Саймонові Дедалу: «Галасливий самодур. За сином світа не бачить. Він має слушність. Є що залишити після себе» [10, с. 84]. Крім того, ставлення Саймона Дедала до Стівена зводиться до пустих гучних заяв убезпечити Стівена від шкідливого впливу Муллігана, хоча сам він навіть не знає, де Стівен живе, і не допомагає йому грішми, коли той ледве зводить кінці з кінцями й щойно змушений був звільнитись з посади вчителя школи. Тому стосунки Стівена із справжнім батьком наповнені образою й демонстративною відчуженістю з боку Стівена.

У «Мьорфі» С. Беккета взаємини «батька» і «сина» наслідують «уліссову» амбівалентність і принцип «замісника». У ролі батька у романі виступає Нієрі, філософ, вчитель Мьорфі, у ролі сина – Мьорфі, колишній студент Нієрі. Їх вік не вказаний, однак ясно, що Нієрі старший за Мьорфі. Метою навчання Мьорфі у Нієрі у місті Корк було набуття «<...> *a little of what Neary* <...> *called the Apmonia*, <...> *Isonomy*. <...> *Attunement*» («<...> трохи того, що Нієрі <...> називав Апмонією, <...> Ісономією. <...> Співзвучністю» (тут і далі переклад автора)) [11, с. 2]. Адже серце Мьорфі страждало нападами, то працювало з надривом, то закипало, що здавалось «<...> от-от розірветься» [11, с. 4]. Навчання завершується безуспішно, і через це Нієрі визнає, що він «<...> *can do nothing for you*» [11, с. 4] («<...> нічого не може зробити для Мьорфі»). Саме ім'я Нієрі (*Neary*) є анаграмою дієслова «знемагати, жадати» (*yearn*) [12, с. 31]. Це вказує на охопленість Нієрі пристрастями. Прикметно, що спочатку Нієрі хоче знайти у Лондоні Мьорфі, щоб змусити його публічно відмовитись від Куніхен, яка тільки за таких умов погоджується стати коханкою Нієрі, а потім, коли Вайлі, колишній учень Нієрі, переконує Нієрі, що оволодіння Куніхен створить у Нієрі порожнечу, такого ж обсягу, що і задоволення від володіння Куніхен, Нієрі вже шукає Мьорфі не як суперника, а як друга.

У романі не сказано про рідних Нієрі та Мьорфі, окрім голландського дядька Мьорфі: «<...> *a well-to-do ne'er-do-well, resident in Holland* <...>» («<...> заможний нероба, який проживає у Голландії <...>») [11, с. 11], – Нієрі говорить що у Мьорфі є лише «<...> *demented uncle* <...>» (<...> божевільний дядько <...>» [11, с. 33]). До речі, образ дядька і місце його проживання, хоча це, звісно, не Данія, може відсилати до образу Гамлета і його дядька, що також створює алюзію до Стівена з його теорією про Гамлета. Сам образ дядька, який дистанціювався від племінника, відображає образ реального дядька С. Беккета, який після смерті батька С. Беккета у 1933 р. давав йому гроші, «<...> *enough to survive on but not to enjoy* <...>» («<...> за рахунок яких можна було вижити, але не розкошувати <...>») [12, с. 52].

Зрештою, возз'єднання не відбувається, бо Нієрі, який після зради Вайлі і Куніхен сприймає Мьорфі як єдиного друга, а потім, після його смерті, захоплюється його коханою Силією і вже бачить у Мьорфі «obstacle» («перешкоду») [11, с. 155]. Мьорфі, не отримавши від Нієрі вміння вгамовувати своє серце, більше не потребує його.

Прагнення Мьорфі повернутись спрямоване у стан до народження, у світ хаосу, розуму і свободи. Мьорфі вірить у долю Белакви з «Божественної комедії» Д. Аліг'єрі. Белаква за те, що лінився молитись за життя, прирікається просидіти у Чистилищі стільки ж років, скільки прожив. Мьорфі, дивлячись на небо зі своєї кімнати у лікарні, роздратований і категоричний у відкиданні впливу гороскопу, зірок на його долю. Він впевнений, що спочатку був він, а потім зірки, він первинний, а решта виникла потім. Це подібне до позиції Стівена, який схилявся до думки єретиків щодо єдиносущності Христа. Крім того, Мьорфі кілька разів в романі співвідноситься з Христом: Силія знаходить його у перевернутому кріслі, звільняє його, при цьому він опиняється у «<...> *crucified position* <...>» («<...> позі розіпнутого <...>») [11, с. 18], у морзі простирадло, яким він накритий, схоже на плащаницю через підпал від праски. Його поєднує з образом Христа і те, що Мьорфі відчуває розщепленість на тіло і душу, що може відповідати божественній і людській природі Христа. До того ж назва психіатричній лікарні, куди Мьорфі влаштовується працювати, – *The Magdalen Mental Mercyseat* (Притулок милосердя Св. Магдалини), – також відсилає до Христа, а Силію, яка працює повією, поєднує з образом Св. Марії Магдалини, яка вела грішне життя до зустрічі з Христом. В контексті образу Христа стає обґрунтованою відсутність у Мьорфі рідних батьків і наявність замісника батька – Нієрі. Таким чином, прагнення повернутись у стан до народження може означати прагнення повернутись до стану єдності з батьком-богом, який відправив Христа у грішний світ. Якщо для Дж. Джойса «повернутись – найгірше, що ти можеш зробити», то для С. Беккета повернення до потойбіччя – єдиний вихід. Таким чином, мотив пошуку батька тут переплітається з мотивом повернення, яке стає єдиною можливістю возз'єднатись з батьком.

Ставлення Мьорфі до бога амбівалентне. З одного боку, він прагне повернутись до нього, з іншого – своїми насмішками намагається привернути його увагу: він травестує причащення під час звичайного обіду: «*On this part of himself that I am about to inigest may the Lord have mercy*» [11, с. 49] («Нехай Господь благословить ту частину себе, яку я збираюсь спожити»), «*Gas. Could it turn a neurotic into a psychotic? No. Only God could do that*» [11, с. 109] («Газ. Чи може він перетворити невротика на психа? Ні. Це може тільки бог»), до речі, хворі у лікарні стають значно спокійнішими, коли він поруч, тож якоюсь мірою він перетворює їх з психів на невротиків. Нієрі у морзі говорить, що Мьорфі не був хрещений.

Прагнення Мьорфі отримати пророцтво у гороскопі можна трактувати як спробу дізнатись волю бога-батька щодо його долі. Популярність Мьорфі у психіатричній лікарні була «<...> *little short of scandalous*» [11, с. 109] («<...> мало не скандальною»), що може обігравати славу Христа, як і мученицька смерть Мьорфі під час випадкової пожежі через витік газу обіграє муки Христа під час страти. І його остання воля змити його прах у туалеті Дублінського театру, яка сама по собі була останньою його насмішкою над життям і смертю, також можна трактувати у контексті образа Христа, для якого смерть не була кінцем. Таким чином, амбівалентне ставлення Мьорфі до бога-батька близьке до богоборчій позиції Стівена.

Якщо в «Уліссі» рідний батько дистанційований від Стівена, викликає у нього сором, то у «Мьорфі» рідний батько згадується лише один раз: вранці свого останнього дня Мьорфі безуспішно намагається згадати обличчя

батька. Про батьків зазначено лише, що він був цілком законнонародженою дитиною.

У «Про водоплавних» Ф. О'Брайєна стосунки «батько-син» подібні до аналогічних стосунків в «Уліссі» тим, що головний герой, молодий чоловік або юнак, має рідного батька, який віддалений від нього, не живе з ним, протягом роману вони жодного разу не спілкуються, і юнак перебуває в пошуках батька духовного. У Дж. Джойса в ролі батька, який шукає собі сина, виступає Блум, стороння людина для Стівена, а у Ф. О'Брайєна в романі «Про водоплавних» у ролі батька виступає дядько головного героя. До речі, вибір дядька на роль замісника батька теж може відсилати до образу Гамлета і його дядька, що також створює алюзію до Стівена з його теорією про Гамлета. Ще одним спільним мотивом є «невозз'єднання» головного героя з «батьком», двоїсті почуття «сина» до «батька», наявність прихованих цілей і корисливих міркувань у «батька». Прихованою мотивацією дядька в його опікуванні головним героєм може бути його прагнення бути батьком хлопчику як спадкоємцю. Дядько поводиться як ханжа щодо головного героя, читає йому мораль і повчання, так само як і Блум Стівенові. У романі «Про водоплавних» у дядька немає дітей, у Блума є лише донька Міллісент. У «Про водоплавних» Ф. О'Брайєна сюжет сфокусований тільки на головному герої, «синові», оповідь іде від першої особи, головний герой і його дядько не називані.

Головний герой «Про водоплавних» – студент, який живе у свого дядька, а його рідний батько тяжко працює, щоб дати своєму синові освіту. Однак важливо, що головний герой, хоч і має суперечливі почуття до дядька, не згадує жодного разу про рідного батька – це свідоме викреслення його з життя й думок. Отже, на місці «батька» в романі умисно залишений один дядько. Хоча головні герої мають всі умови й шанси для «віднайдення» один одного, цього не відбувається. Оповідача утримує від зближення з дядьком його повчання, турбота лише про «функції» його як спадкоємця (уникання неприємностей і ризиків для здоров'я, успішне навчання). Так само як і Стівена утримує від зближення з Блумом прагматична увага Блума до здоров'я Стівена, його безпека, його майбутнє.

У романі «Про водоплавних» не сказано, чи має дядько дружину й дітей, однак можемо припустити, що його син помер. Головний герой пише роман про письменника Трелліса, подібного до батька: *Some years after his son`s death* («Через кілька років після смерті сина <...>») [13, с. 27]. Можливо, дядько героя «Про водоплавних» має трагічний досвід батьківства, як і Блум, однак, прямо про сім'ю в романі нічого не повідомлено.

Дядько постійно дорікає племінникові лінню, яка також властива Стівену і Мьорфі. Незважаючи на постійні докори дядька, головний герой, який ставиться до нього холодно, зрештою змінює свою думку про нього. Дізнавшись про благополучне завершення ним коледжу, дядько радіє цьому, купує племіннику годинник і урочисто його дарує.

Водночас важливо те, що дядько проявляє турботу й зацікавленість, коли головний герой досягає певних успіхів у навчанні, складає іспити й повертається додому «героєм». Із цього виходить, що дядька успіхи «сина» цікавлять більше, ніж сам «син». Таким чином, щасливий фінал роману, скоріше, саркастично щасливий: якби головний герой не склав іспити й у цій критичній ситуації дядько пішов би йому назустріч, втішив би його, це було б правдоподібним зближенням.

ВИСНОВКИ

Отже, у романах «Улісс», «Мьорфі» і «Про водоплавних» головний герой, молодий чоловік, студент, віддалений від рідного батька, відчуває потребу у віднайденні патрона, який може бути для нього замісником батька. В «Уліссі» головний герой – це Стівен Дедал, 22-річний студент і молодий викладач, у «Мьорфі» – колишній студент Мьорфі, у «Про водопланих» – безіменний студент. В «Уліссі» в ролі патрона виступає стороння Стівенові людина – Леопольд Блум, у «Мьорфі» – його колишній вчитель Нієрі, у «Про водоплавних» – дядько головного героя. Рідні батьки героя в усіх трьох творах подібні: в «Уліссі» – не живе з сином, байдужий до нього, п'яниця, присутній у романі епізодично, не перетинається із сином; у «Мьорфі» не тільки рідний батько не згадується, а й дядько проживає в іншій країні, у «Про водоплавних» – теж не живе з сином, працює, щоб платити за його утримання, геть не з'являється в романі, що говорить про те, що він викреслений із життя сина, він, як і будь-які інші родичі, крім дядька,

жодного разу не згаданий у романі. Ф. О'Брайєн наче проводить контр-«уліссівський» експеримент: бере батька без сина і сина, в якого немає батька, залишає сина з дядьком, замісником батька у певному вакуумі, однак, возз'єднання не відбувається.

Отже, «сини» в усіх романах мають рідних батьків, і хоча ті викликають у них сором, образу або взагалі відсутні в їхніх думках і житті, прийняття іншої людини як батька змусить їх певною мірою зрадити свого рідного батька.

Слід зазначити, що в усіх романах стосунки сина з «патроном» напружені й головний герой має двоїсті почуття щодо замісника «батька». «Батьки» мають приховану мотивацію, бажання реалізуватись як батько – мати спадкоємця, успішного сина. Стівен Дедал зрештою не «возз'єднується» з Блумом, Мьорфі помирає, так і не зустрівшись з Нієрі, головний герой «Про водоплавних» наприкінці переймається до дядька симпатією, але залишає питання перспективи їхніх стосунків відкритим, адже дядько проявив теплі почуття до племінника тільки через його успіхи, зближення й встановлення духовного зв'язку між ними не відбулось.

Напрямом подальшого дослідження може бути встановлення інтертекстуального зв'язку роману «Улісс» Дж. Джойса з іншими романами С. Беккета і Ф. О'Брайєна.

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Formulation and Characterization of Adhesive Produced From Polystyrene Waste Using Response Surface Optimization

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Abstract. Polystyrene is extensively used in building and construction industry, packaging and transportation of fragile equipment due its low density, high melting point, low thermal conductivity, low water absorption, etc. Polystyrene after usage is usually discarded thereby causing environmental problems. The post-usage of polystyrene has, therefore, been a subject of intense research in recent times. The aim of this work is to produce adhesive from polystyrene wastes. Polystyrene waste (PS) was collected, processed and dissolved in tackifyer and formulated with diphnyle amine and diethylene glycol dibenzoate additives to produce adhesive using 3 levels variables factors and 4 levels testing factors of design expert optimization software. The produced adhesive was further characterized for viscosity, pH, percentages solid and moisture contents for their response surfaces. The results showed that the best fit viscosity for each run was Run 1B> Run 5A > Run 5D> Run 5B>Run 4D based on the regression analysis and analysis of variance (ANOVA). The pH values obtained ranged from 4.0 to 6.3; percentage moisture content was in the order of Run 1B < 5A<4D<4B and percentage solid content was in the order of Run 1B<5A<4D. The best fitted adhesive was run 1B with 5.93 % moisture content; 5A has 7.57 % moisture content and 4D with 8.76% moisture content. The percentage solid content; Run 1B has 67.19 %, 5A has 68.16 % and 4D has 75.50 %. The produced adhesives were found within the standard range of adhesives used in production of particleboard.

Keywords: adhesive; characterization; formulation; polystyrene waste; response.

INTRODUCTION

Waste is any unavoidable material resulting from domestic, industrial or social operations that are not having any economic value and the end results is disposal. The prevailing situation of indiscriminate disposal of non-biodegradable waste materials is a great concern for sustainable ecosystem and clean environment. Nevertheless, these wastes could also contain a lot of valuable resources in the form of nitrogen, phosphorus, potassium, methane and other chemicals which might be useful [1]. The search for better life and socio-economic activities contributes to generation of these wastes from different sources, which are either classified as solid or liquid [2].

Polystyrene which is known as Styrofoam is a synthetic aromatic polymer made from monomer of styrene, which can either be solid or foamed. It is traditionally produced by alkylation of benzene reacting with ethylene to produce ethylbenzyene. Its dehydration results into formation of styrene monomer [3]. The Chemical formula is $[-CH_2 - CH - (C_6H_5) -]n$ and has molecular weight of 104.15 g [4].

Polystyrene decomposes between the temperature ranges of 350 to 450 °C [5, 6]. Take as much as 30 % of landfills worldwide [7] and has low density [3, 8]. Highly flammable, releases lots of black smoke when combusted and generally non-biodegradable [9]. Recycling is not economical [10]. Incineration requires high temperatures up to 1000 °C and plenty air, as much as 14 m^3/kg [11]. When buried remain as non-decayed materials, preventing water infiltration to the ground [12]. However; it dissolves easily in chlorinated solvents and many other aromatic

hydrocarbons [7, 13, 14]. This research is aimed at conversion of polystyrene waste to adhesive using affordable solvents and additives for stabilization. This will also be of more economic value and create clean and sustainable environment.

Adhesive is a substance when applied to substrates sticks to the surfaces that two become bonded together by wetting the surfaces to be joined [15]. It is either natural from animal bone and vegetable sources or synthetic from chemicals [16] depending on the source of formulation. Researchers have shown that adhesives are used in furniture making [17] and composite materials such particleboard for modern furniture for both industrial, domestic and office usage [12, 18]. However, 80% of adhesive used in productions of wood based panels contains urea formaldehyde [19], has been reported carcinogenic and non-friendly to the users [20, 21, 22]. Various formulations have been experimented to reduce its emission to cushion its health effect are still at the infant stage. Considering the health effects of urea formaldehyde resin in production of composite materials, this research is desired to formulate adhesive from polystyrene waste for particleboard production.

C. Xing [23] determined the effect of pH, solid and catalyst on the gel time of urea formaldehyde adhesive. The following factors determines adhesive quality; viscosity, pH, % M. C. & % TS as used in most composite materials and panel production [24, 25, 26, 27, 28].

Adhesive pH is critical in ascertaining its longevity and handling processes [29, 30, 31]. It's determined the applicability of adhesive as curing depends of pH value. The percentage moisture (% M. C.) of adhesive determines the longevity and its adherends to substrates during application, and for non-water soluble adhesive it should be less than 10% [13, 32, 33]. Authors [34] and [19] reported that high moisture contents dilute the adhesive which could weaken its strength in adhesion to substrates. The procedure for determination of adhesive % M. C. is by using Equation 1 [32].

$$\text{Moisture content, \%} = \frac{\text{Original weight} - \text{Dry weight}}{\text{Original weight}} \times 100 \quad (1)$$

The solid content (%TS) is critical in quality parameters of adhesive, for water soluble the solid content is within the range of 55–57 % [19], while non-water soluble are greater than 65% [24, 27]. The procedure for determination of %TS is by using Equation 2 [35].

$$\text{Solid content, \%} = \frac{\text{Dry weight}}{\text{Original weight}} \times 100, \quad (2)$$

In this research, design expert 6.0.8 version software was used in the formulation of adhesive [15]. The resin was formulated using polystyrene waste and tackifyer at different ratios, and followed by 3 factor development of adhesive with additives [36]. The produced adhesive was further characterized with 4 response surfaces.

MATERIALS AND METHODS

Polystyrene waste was collected from commercial outlets in Bauchi metropolis, the tackifyer was obtained from Total Filling station, Yelwa. The reagents used: diphenyl amine (99.9 % purity), diethylene glycol dibenzoate (99.8 % purity) BDH Chemical and absolute ethanol (98 – 99 % purity) Nertherlands GPR were purchased from a local vendor. The equipment used were digital weighing balance model PGW 45021, Hot Air Oven, Rotary viscometer model TT-5, pH meter model JENWAY 3510, mechanical stirrer model Heidolph 50111 and measuring cylinders.

Polystyrene wastes were first washed and dried, then fragmented and weighed. The plasticizer was synthesized from diethylene glycol and benzoic acid, tackifyer and antioxidant were formulated based on experimental design. This was followed by formulation of resin based on 2 factorial design using mixture following the procedure as presented in Equation 3 [15, 24].

$$\begin{matrix} Polystyrene\ waste\ (PS), \text{g} + \\ + Tackifyer\ (Tkf), g = 1 \end{matrix}, \quad (3)$$

Resin design formulation is presented in Table 1.

Table 1 – Resin Design Formulation

Component, g	Low limits	Constraints	High limits	Coded factors	
				Low	High
PS	0.50	A	0.75	0	1.000
Tkf	0.25	B	0.50	0	1.000

After resin formulation, 3 factorial designs variables were developed to produce adhesive using mixture design expert and D-optimal for response surfaces. Equation 4 presents the formulation procedure for adhesive formulation [15, 36].

$$A+B+C=1, \quad (4)$$

Adhesive experimental design is presented in Table 2.

Table 2 – Design Constraints Table Adhesive formulation using D-optimal

Component	Name	Units	Actual values		Coded Values	
			Low	High	Low	High
A	Resin	g	0.65	0.79	0.000	0.993
B	Plasticizer	g	0.20	0.34	0.000	1.000
C	Antioxidant	g	0.009	0.01	0.000	0.007

The produced resin was further blended with PLZ and AOX based on the DOE ratios and stirred with the addition of additives at ambient conditions, resulting into a thin film of adhesive produced. The produced adhesives were characterized for their response surfaces results at ambient conditions.

Rotary viscometer model TT-5 was used according to the standard procedure [37]. The apparatus were set on automatic mode, with the selection of appropriate spindle for viscosity test. It was gribbed, adjusted and inserted into the adhesive up to a mark. The automatic rotary viscometer was powered on to start running as it selects the rotation in revolution per minute (RPM) at 6, 12, 30 and 60. After every rotation it displays the data for the viscosity at each RPM which was recorded as the viscosity at that point. This test was rerun three (3) times for each sample for accuracy.

The pH meter JENWAY model was used to determine the pH of the produced adhesive before and after stirring. The meter was cleansed with solvent to be free of dirt and impurities on the electrodes. It was followed by stabilization in buffer solution and immersion in the sample. The meter start reading immediately when it is immersed until it attains stability and a curve is displayed with ready showing optimal value plotted. The test was rerun three (3) times for each sample for accuracy.

The percentage solid content of produced adhesive was determined using laboratory crucibles. A known quantity of the sample was weighed and oven dried at a temperature of 200oC. After 2 hours, the sample drying was discontinued and removed from the oven to cool and weighed after as dry weight.

RESULTS AND DISCUSSION

The viscosities of produced adhesives were determined and their results are presented in Figures 1–3.

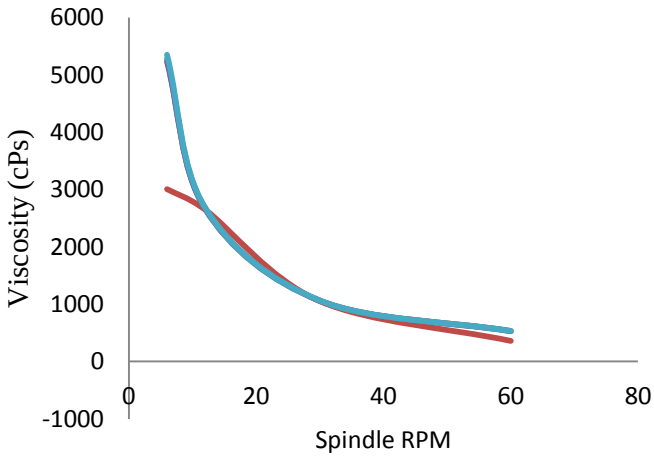

Figure 1– Run 1 Viscosities

Figure 1 present viscosity curves for run 1 of produced adhesives 1 (A, B, C, D & E) in triplicates, some curves were overlapping due to closer values of the viscosities. The values obtained are: Runs 1A, 5267 cPs; 1B, 3006 cPs; 1C, 5285 cPs; 1D, 5228 cPs & 1E, 5351 cPs. These values were found within the range of viscosity data for urea formaldehyde adhesive used in particle board [25, 26, 27]. The data was modeled to get the best fit using regression (R^2) curve and DOE response model [24]. The results showed that (R^2) are: Runs; 1A 0.7034; 1B 0.9105; 1C 0.7042; 1D 0.7077 & 1E 0.7010. Run 1B (R^2) and 0.8612. Thus; run 1B is considered significant model which can be used to navigate the design.

Figure 2 presents viscosity curve for Run 4 (A, B, C, D & E) in triplicates. The viscosity data obtained are: 4A, 5240 cPs; 4B, 5259 cPs; 4C, 5250 cPs; 4D, 4846 cPs & 4 E, 5229 cPs. Furthermore, the R^2 values are: 4A, 0.7035; 4B, 0.7039; 4C, 0.6468; 4D, 0.7265 & 4E, 0.7048 respectively.

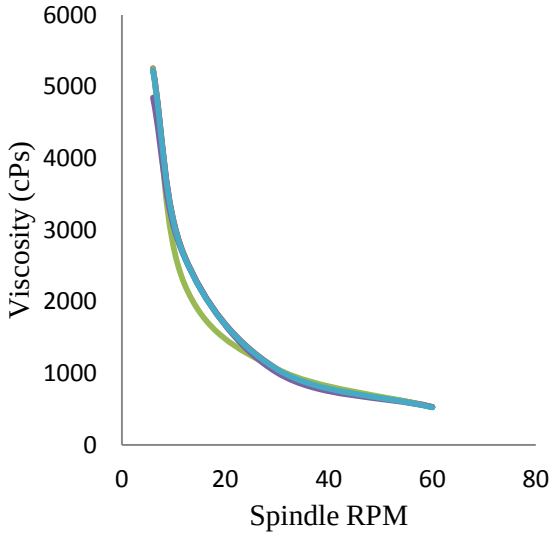

Figure 2 – Run 4 Viscosities

Viscosities obtained in this experiment falls within the range of viscosity of urea formaldehyde used as binder in panel and other composites materials production [25, 26, 27].

Figure 3 presents viscosity curve for Run 5(A, B, C, D & E) in triplicates. The viscosities data obtained are: 5A, 2431 cPs; 5B, 1925 cPs; Runs 5C, 5D & 5E data were not detected by the viscometer which implies lack of adhesive fitness. Furthermore, the R^2 values are; 5A, 0.8201; 5B, 0.7808; 5C, 5D, 0.8148 & 5E, 0.6602 respectively.

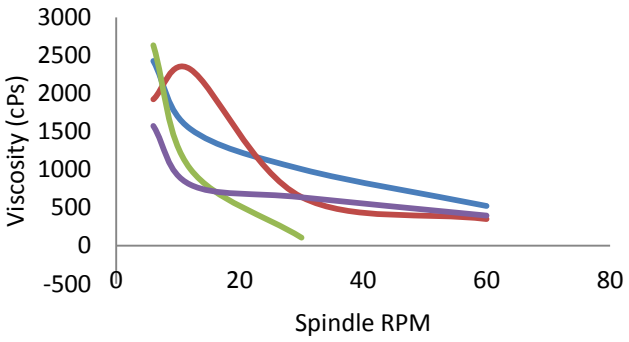

Figure 3 – Run 5 Viscosities

Even though these viscosities values falls within the range of viscosity of urea formaldehyde used as binder in panel and other composites materials production [25, 26, 27, 37], the RS model fails to recommend this model for navigation. Thus; the overall viscosities result analysis revealed that Run 1B model values shows significant model that could be used to navigate the design having R^2 value of 0.9105.

Figures 4–6 presents the pH values obtained from adhesives developed. The response surfaces were determined before and after stirring to study the effect of stirring on acidity content.

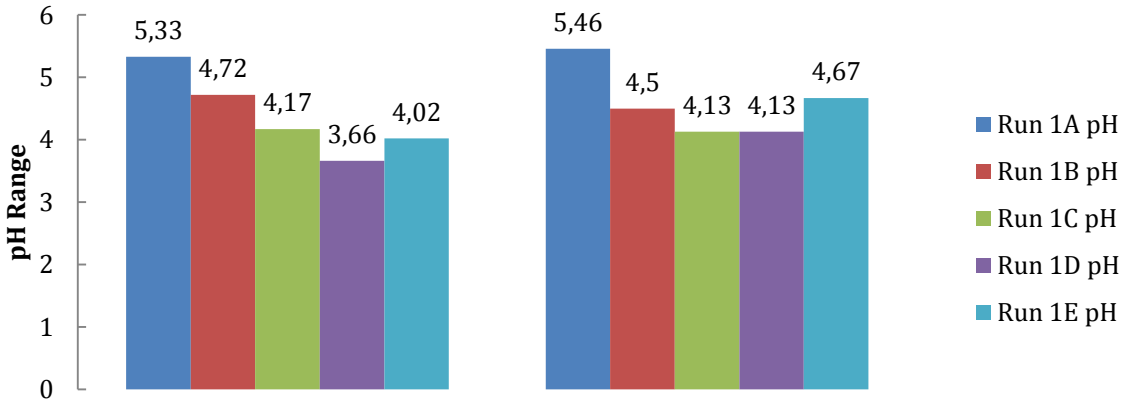

Figure 4 – Run 1 pH before and after Stirring

Figure 4 presents results of pH data obtained from experimental results before and after stirring. The pH before stirring was lower than the pH after stirring; this differential could be due to the effect of homogenization of the sample after stirring with phase disappearing after stirring. It also suggests the presence of plasticizer ratio in the produced adhesive. The values obtained were within the reported values of urea formaldehyde resin used in particleboard production [27]. However; this acidity was as result of dibenzoate used in plasticizer and is a weak acid with less effect on the cure rate of the produced adhesive.

Figure 5 presents the pH values of experimental data results for runs 4 before and after stirring.

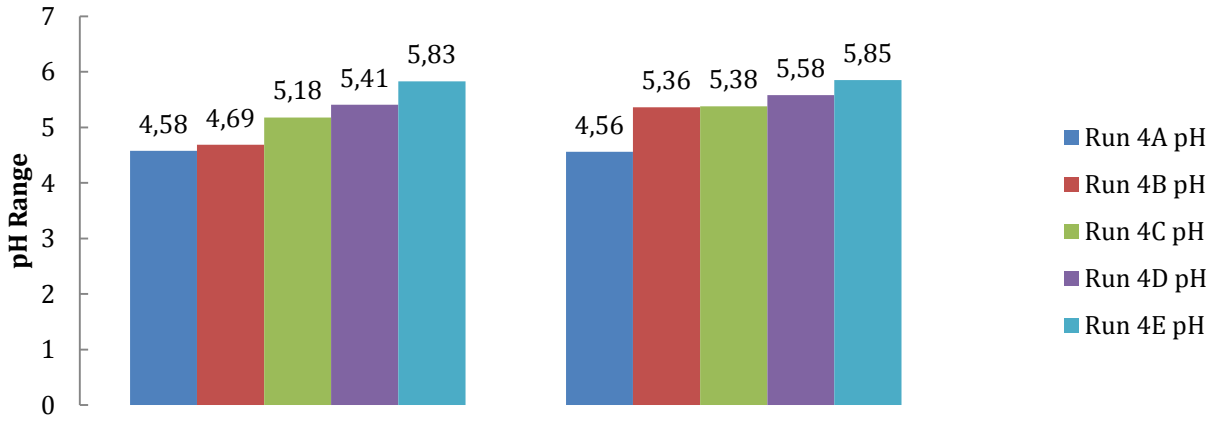

Figure 5 – Run 4 pH before and after Stirring

Except for run 4A, which shows drop in pH after stirring, the remaining had slight improvement in pH values. This difference is due to the settlement of adhesive phase layers. However, when stirred, the phases become homogenized and produced the corresponding value of the sample. Figure 6 presents the experimental results data for runs 5. The samples pH was determine before and after stirring. Run 5A & B values were < 4, while C, D & E were >4 as shown.

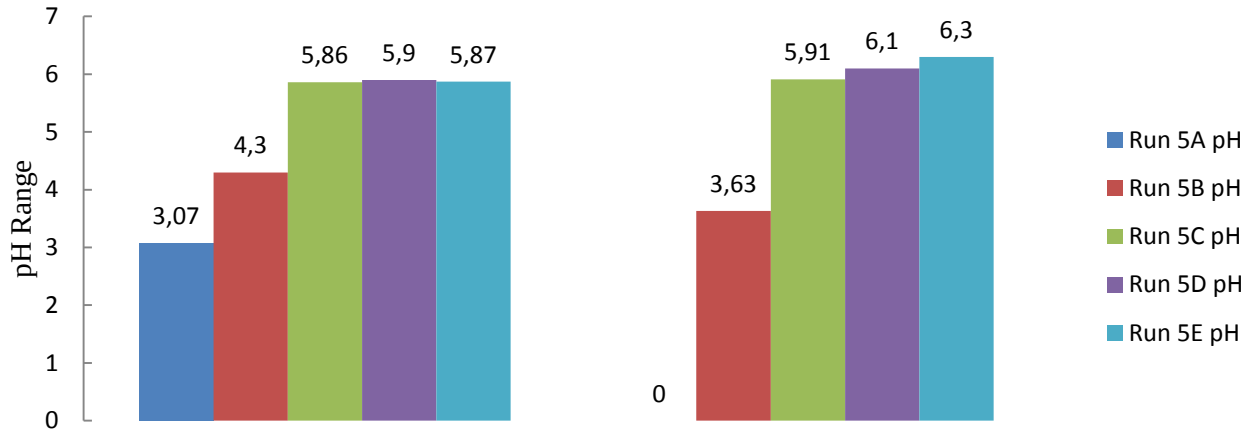

Figure 6 – Run 5 pH before and after Stirring

Run 5A & B even after stirring could not improve the pH values, these high acid values shows that the adhesive produced from this run is not suitable for application in composite materials as high acid values will weakens the strength of the substrate. Runs 5 (C–E) show favorable pH value which falls within the reported values of UF resin used for particleboard production.

The produced adhesives were characterized for % M. C. as presented in Figures 7–9.

Figure 7 presents the % M. C. of produced adhesive for Run 1 (A-E). Run 1 B has the lowest % M. C. of 5.93 % as compared to D (11.01 %), C (15.18 %), A (17.46 %) and E (40.47 %). This low moisture suggests that the model could be used as binders in formulation of composite materials production as high moisture degrade the quality of the adhesive rapidly. Figure 8.0 presents the % M. C. of Run 4 (A, B, C, D % E) of produced adhesives. Out of the 5 samples, Run 4D had 8.76 % being the least % M. C. as compared to B (10.74 %), C (11.54 %), E (13.17%) and A (13.57%).

This revealed that Run 4D could serve as binder in composite material such as particleboard production as it has met the required minimum % M. C. of adhesives used as reported [19, 27, 32, 33, 37].

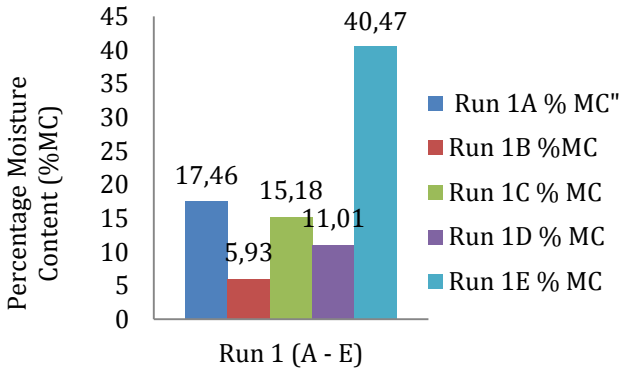

Figure 7 – Run 1 % M. C.

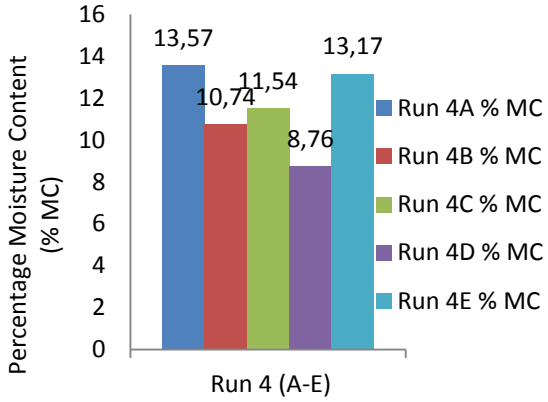

Figure 8 – Run 4 % M. C.

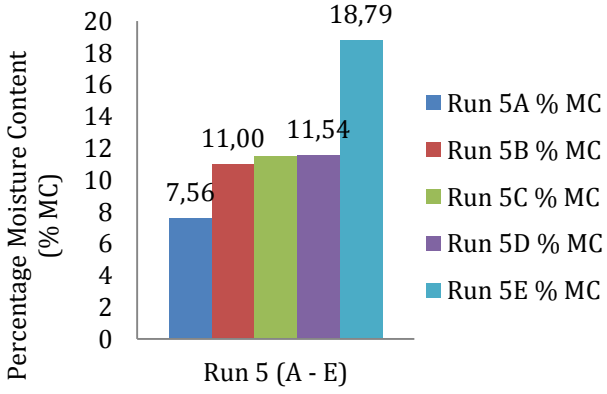

Figure 9 – Run 5 % M. C.

Figure 9 presents the % M. C. of Run 5 (A, B, C, D & E) of produced adhesives. Out of the 5 samples, Run 5A were found to be least with 7.57 % as compared to B (11 %), C (11.45 %), D (11.54 %) and E (17.85 %) respectively. This shows that adhesive with low % M. C. has better property of bonding to substrate and might not degrade rapidly. And of all the samples, Run 1B was the least and best fit based on the urea formaldehyde adhesive used in particleboard as reported is Run 1B < 5A < 4 D.

Figures 10–11 presents the %TS contents of the produced adhesive for different experimental runs.

Figure 10 presents percentage solid contents for run 1 (A, B, C, D & E). The following data were obtained from the experimental runs. A 67.01 %, B 67.19 %, C 58.36 %, D 61.39 % and E 48.41 %, these implies data, Run 1B exhibits the highest %TS of 67.19 % which depicts the solid content of urea formaldehyde used for particleboard reported by [24] which had %TS >65 % for non-water soluble adhesive. While other runs falls below 65 % is not within the expected range of adhesive solid content.

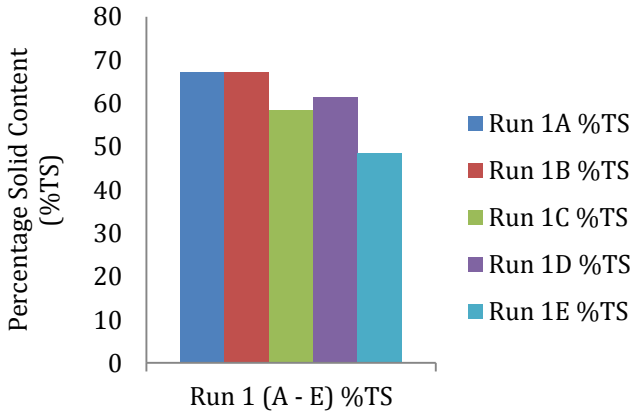

Figure 10 – Run 1 % Solid Content

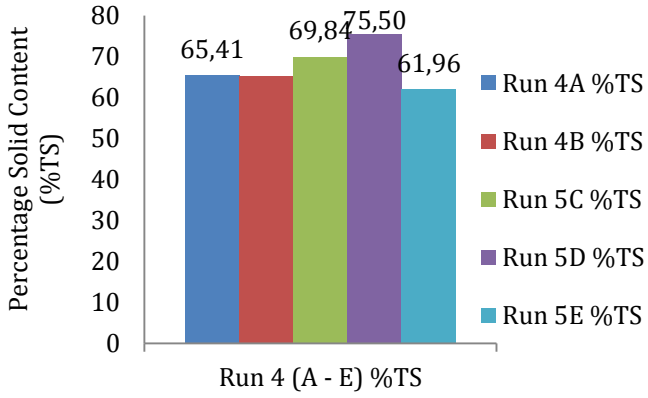

Figure 11 – Run 4 % Solid Content

Figure 11 presents the %TS for run 4 (A, B, C, D & E). The results shows that A 65.41 %, B 65.15 %, C 69.84 %, D 75.50 % and E 61.96 %. from these analysis only run 4E which has 61.96 % TS fall below the TS of adhesive reported used in parti-

cleboard production, whereas runs 4 (A –D) are above 65 %. This implies that adhesives from runs 4 (A-D) could be used for composite material production if other quality parameters are met as reported [24, 27, 28].

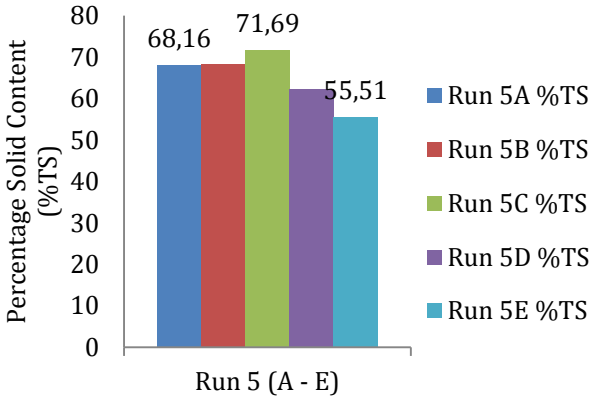

Figure 12 – Run 5 % Solid Content

Figure 12 presents the %TS for run 5 (A, B, C, D & E). The results shows that A 68.16 %, B 68.22 %, C 71.69 %, D 62.15 % and E 55.51 %. From these analysis Runs 5 (D &E) falls below 65 % and Runs 5 (A–C) are within the range >65% for non-water soluble adhesive. Thus, the produced adhesives with %TS above the urea formaldehyde adhesive used in particleboard and other panels could be used in the production of composites materials such as particleboard [24, 27, 28].

CONCLUSION

Adhesive was formulated from polystyrene and tackifyer, using additives as stabilizer. The process revealed that, polystyrene to tackifyer ratios of 0.5625 to 0.4375 was the adequate proportions for resin formulation; while additives with ratios of plasticizer (0.19) and antioxidant (0.01) blended with resins (0.80) produced the best fitted adhesive among others. Run 1B with viscosity of 3006 cPs was best fitted based on the R^2 and ANOVA from the design expert. The corresponding pH of 4.5, percentage total solid content of 67.19 % and percentage moisture content of 5.93 % were obtained. The design expert modeling suggested that; Run 1B could be used to navigate the model as it has met the criterion for adhesive used in panels. Therefore; the produced adhesive could be used for particleboard production.

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Prediction of Loss on Ignition of Ternary Cement Containing Coal Bottom Ash and Limestone Using Central Composite Design

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Abstract. The effect of CBA/CBA-L ratio and the cement replacement on the Loss on ignition (LOI) of ternary cement blends was investigated using central composite design approach in the prediction of LOI of ternary cement blend comprising of Ordinary Portland cement, coal bottom ash and Limestone. LOI is an essential technique employed in the determination of the quality of the cement blend which can be achieved by heating a sample strongly at a specified temperature to enable release of volatile components until the weight remains constant. In this study, monitoring of the LOI of the various cement blends conducted dependent on cement replacement and coal bottom ash to coal bottom ash-limestone ratio (CBA/CBA-L ratio) via thermogravimetric analysis (TGA) and X-ray fluorescence (XRF) analysis. The CBA/CBA-L ratio was varied from 0.25-0.75 while the cement replacement ranges from 20-40%. The significance of these factors within the specified ranges considered was evaluated using analysis of variance. The aim of the study was to evaluate the effect of CBA/CBA-L ratio and cement replacement in the prediction of LOI for ternary cement blends by employing Face Central Composite Design. Analysis of variance results indicated that the LOI prediction via XRF analysis was better than that of TG analyses in which both satisfied Two-Level Factorial model. It was observed from the predictive models that the LOI of the ternary cement decreased as the CBA/CBA-L ratio was increased while LOI of the ternary cement blend increased as the cement replacement was increased. An increase in both CBA/CBA-L ratio and cement replacement resulted in a decrease in the LOI of ternary cement. The cement replacement level of the ternary cement blends indicated a stronger influence on LOI compared to the CBA/CBA-L ratio which was indicated by a significantly high F value for cement replacement compared to CBA/CBA-L ratio. The LOI results from XRF analysis were also found to significantly predict the LOI of the ternary cement blend compared to TGA with Regression value of 99.96% against 97.36% respectively. The CBA/CBA-L ratio and cement replacement were found to have a significant and interactive effect on the LOI of ternary cement blend for both XRF and TGA analyses.

Keywords: prediction; loss on Ignition; cement replacement; coal bottom ash to coal bottom ash-limestone ratio; central composite design.

INTRODUCTION

The continuous generation of waste which possesses both hydraulic and pozzolanic properties via pyro processes along with environmental concerns has given rise to the need to effectively utilize ashes as pozzolana to improve the physico-mechanical properties and durability of cement [1, 2, 3]. Various successes in the use of ashes ranging from fly ash [4], coal bottom ash [5, 6], rice husk ash [7, 8]. Loss on ignition (LOI) is one of the quickest and cheapest techniques employed in the determination of the quality of the cement blend. It is a key cement property that affects the quality of cement blends contain-

ing pozzolanas like slags, coal bottom ash, rice husk ash, corn cob ash [9] etc., which are associated with the amount of moisture and carbonates present [10, 11]. Loss on ignition of coal bottom ash or cement blends can be determined by heating a sample strongly at a specified temperature to enable release of volatile components until the weight remains constant [12]. The value of the Loss on ignition can be considered as a determinant for unburned carbon degree of bottom ash [6, 13]. According to [14], the LOI of cement or types of cement can be achieved practically by heating up ten grams in a platinum crucible at a temperature of 900 to 1000 °C for 15 minutes [12]. The weight losses of cement blends during heating could be due to the evaporation or volatilization of a variety of components of the sample and some of the components lost include water at 100–105 ˚C, organic material which is burnt off at about 550 ˚C, while most of the carbonates decompose between 800–1000˚C [15].

The quality and reactivity of the pozzolan could be influenced due to pre-hydration and carbonation owing to improper and prolonged storage of the cement sample or adulteration during transportation of the material (high LOI), thus, impacting on its performance [11]. The importance of the knowledge of the LOI cannot be overemphasized as it can also be employed as an indicator in monitoring the quality of the final product during clinker production [15, 26]. The loss on ignition of the coal bottom ash, cement or cement blend is the amount of weight loss through raising the temperature of the material to a predetermined level. These losses in weight could be due to moisture and carbon dioxide causes weight loss which should not exceed 5 % for all types of cement. Most of the pozzolans such as coal bottom ash [3, 5, 6, 17], fly ash [4, 17, 18], rice husk ash [19], corn cob ash [9] and other biomasses to a large extent exhibits loss on ignition values ranging from 2–10 %. In order to successful determine the quality of the cement blends/ pozzolans and reduce the cumbersome task of determining the LOI test manually, the need to provide a predictive model for the determination of the LOI of cement blended with limestone and coal bottom ash which could ascertain the quality of the cement blend employed [16]. Response surface methodology (RSM) is a set of the statistical or mathematical technique employed to evaluate the effect of several factors on a given response [20]. Amongst other design models under response surface methodology is the central composite design. The central composite design has been found to provide relevance in various areas such as the construction/building sector as well as other engineering sectors with confidence level ranging from 83–99 % to establish a correlation between response and the factor to be considered and it is effective in providing insight on the interaction between the factors and responses. One of the successes includes the prediction of mortar compressive strengths for various construction applications with a high confidence level of about 90% according to [16].

Previous work by [6] investigated the effect of limestone and Coal bottom ash as a partial replacement on the LOI of ternary cement blends. This paper tries to provide a model for the prediction /determination of the LOI of ternary cement blends containing OPC, limestone and coal bottom ash using response surface methodology via Central composite design. The developed model was investigated to determine the effect of cement replacement and composition of the cement blend (ratio of the pozzolana/cement replacement content), CBA/CBA-L ratio for the determination of the LOI of the cement blend.

MATERIALS AND METHODS

Table 1 indicates the design summary for determining the loss of ignition via TGA and XRF analysis (responses) and how CBA/CBA-L ratio and cement replacement level affect the two responses, the following parameters were chosen as independent variables: CBA/CBA-L ratio (0.25, 0.50, 0.75), while the cement replacement level (20, 30, 40%). Face central composite factorial design (3 level 2 factors) with 9 runs (1 block) (Design expert 6.0.8) where –1 denotes low value of the independent variable (0.25, 20 %), 0 used for the medium value (0.50, 30 %) and for the high value (0.75, 40 %). A model was fitted to the response surface generated by the experiment.

Table 2 indicates the experimental results for the Loss on ignition of the ternary blend via TG method and XRF analysis obtained from the calcination of alum derived from kaolin clay to alumina at various temperatures and times for cement replacement levels from 20–40 % and CBA/CBA-L ratio from 0.25–0.75.

Table 1 – Design Summary

Study Type	Response Surface	Experiments	9				
Initial Design	Central Composite	Blocks	No Blocks				
Design Model	Quadratic						
Response	Name	Units	Obs	Minimum	Maximum	Trans	Model
Y_1	LOI TGA	%	9	8.1	14.2	None	Quadratic
Y_2	LOI XRF	%	9	6.54	15.51	None	2FI
Factor	Name	Units	Type	Low Actual	High Actual	Low Coded	High Coded
X_1	CBA/CBA-L ratio		Numeric	0.25	0.75	-1	1
X_2	cement replacement	%	Numeric	20	40	-1	1

The analysis of variance (ANOVA) and response surface method (RSM) were conducted using design expert 6.0.8 program and presented in Table 3.

The model was obtained for each dependent variable (or response) where the factors were rejected when their significance level was less than $p< 0.05$, confidence limit 95 %. The design expert 6.0.8 was used to produce contour plots and graph.

Table 2 – Experimental design and results

No	CBA/CBA-L ratio	Cement Replacement, %	LOI TGA, %	LOI XRF, %
1	0.25	30	13.45	12.94
2	0.25	40	14.20	15.51
3	0.50	40	11.00	11.91
4	0.75	20	8.10	6.54
5	0.25	20	11.20	10.08
6	0.50	30	9.90	10.10
7	0.75	40	8.40	8.28
8	0.75	30	8.25	7.35
9	0.50	20	9.60	8.43

Table 3 – ANOVA for Response Surface Model Analysis of variance for LOI of ternary cement blend for TGA & XRF with Central Composite Design CCD

Source	Sum of Squares	DF	Mean Square	F Value	Prob > F	
Model Y_1	38.64	3	12.88	66.9	< 0.0001	Significant
X_1	33.14	1	33.14	172.1	< 0.0001	Significant
X_2	3.68	1	3.68	19.12	0.0018	Significant
$X_1 X_2$	1.82	1	1.82	9.47	0.0132	
Residual	1.73	9	0.19			
Lack of Fit	1.73	5	0.35			
Model Y_2	66.92	3	22.31	7400.15	< 0.0001	Significant
X_1	44.61	1	44.61	14799.5	< 0.0001	Significant
X_2	18.90	1	18.90	6271.62	< 0.0001	Significant
$X_1 X_2$	3.40	1	3.40	1129.34	< 0.0001	Significant
Residual	0.027	9	3.01E-03			
Lack of Fit	0.027	5	5.43E-03			

RESULTS AND DISCUSSION

Face central composite design was employed and the factors required include Coal bottom ash to coal bottom ash- limestone ratio (CBA/CBA-L ratio) and cement replacement with their responses; Loss on ignition of cement blend for TG and XRF analyses respectively. The effect of the various factors on the responses were determined using design expert 6.0.8. These equations (1)–(2) represent quantitative effect of the factor's variables; CBA/CBA-L ratio and cement replacement (X_1, X_2) and their interactions on the response; LOI via TGA and LOI via XRF (Y_1, Y_2) respectively. The values of X_1 and X_2 were then substituted in the equation to obtain the theoretical value of Y_1 and Y_2 respectively.

$$LOI_{TGA} = Y_2 = +8.58462 - 1.300X_1 + 0.21333X_2 - 0.2700 X_1X_2 \quad (1)$$

$$LOI_{XRF} = Y_2 = +4.71179 + 0.16333X_1 + 0.362X_2 - 0.369 X_1 X_2 \quad (2)$$

The CBA/CBA-L ratio, (X_1) obtained a F value of 172.1 and 14,799.50, while for the cement re-

placement (X_2) produced a F value of 19.12 and 6,271.62 for TG and XRF analyses respectively. The high F value is a strong indication that the effect of the CBA/CBA-L ratio has a far more significant compared to the cement replacement while the product of interaction terms obtained very low F values of 9.47 while for XRF analysis obtained a relatively high F value of 1129.34 respectively with p values of > 0.05 respectively. The analysis of variance showed the significant effect of the independent variables on the responses and determined that the responses were significantly affected by the various interactions. Table 3 indicates the analysis of variance for LOI via TG and XRF analyses both gave insignificant lack of fit values of 0.35 and 0.00543 respectively. It could be concluded that both factors X_1 and X_2 significantly affected both responses.

The first and second responses were both suitable for 2 factorial level model to predict the function response for all the dependent variables. The linear term of CBA/CBA-L ratio, cement replacement and their interaction were statistically significant for the determination of the LOI for TG and XRF analyses of ternary cement blend. This is because the p values fell within p<0.05 or p<0.10 for the interaction between both factors for both responses were statistically significant. From the analyses both responses indicated that the linear terms for cement replacement was more significant having high F value (172.1/14799.50) compared with that of CBA/CBA-L ratio (19.12/ 6271.62). Thus, the CBA/CBA-L ratio was found to contribute substantially in the generation of either of the two models. Similarly, the interaction of the CBA/CBA-L ratio and cement replacement was also found to exist which was more significant at p<0.05 or p<0.10 for the model for LOI via XRF analysis compared to LOI via TG analysis. The residual variance for the models were insignificant thus indicates the error term representing the lack of fit variation [21]. Both models had insignificant lack of fit tests which means that the model represents the data satisfactorily. The relatively high R^2 value is an indicator that the variation observed and the data fitted satisfactorily for Two Level factorial level model for LOI via TG and XRF analyses with R^2 value of 95.71 % and 99.86 % respectively. Thus, indicating a good fit of the model to experimental results.

Based on the experimental design and factor combination, amongst the other models, two level Factorial model was found to be significant for LOI of cement blends via TGA and XRF analyses as shown in Table 4 and 5 respectively.

Table 4 – Model Summary Statistics/ Sequential Model Sum of Squares for CCD for LOI via TGA

Source	Sum of Squares	DF	F value	Prob> F	Std. Dev.	R^2	Adj. R^2	Pred. R^2	PRESS	
Linear	36.82	2	51.78	< 0.0001	0.60	0.9119	0.8943	0.7997	8.09	
2FI	1.82	1	9.47	0.0132	0.44	0.9571	0.9428	0.8988	4.09	Suggested
Quadratic	1.11	2	6.24	0.0278	0.30	0.9846	0.9736	0.8775	4.94	Suggested
Cubic	0.21	2	1.26	0.3611	0.29	0.9897	0.9754	-0.1922	48.13	Aliased

It was suggested that a fitted model can be considered to be acceptable when the R^2 is not less than 80% and greater than 75 % respectively according to [22] and [23]. Table 4 indicates the determination of LOI via TGA and observed that the R^2 and predicted R^2 were 95.71 % and 89.88 % respectively implying that the predicted model can only represent 89.88 % of the data in determining the LOI via TGA. The PRESS value for LOI via TGA analysis was observed to be relatively high compared with LOI via XRF analysis at 4.94 as indicate in Table 4. The lower the PRESS value, the better model fit for the experimental data. Thus, the F value for the model of LOI via XRF was highly significant (1129.34). The R^2 and the predicted R^2 values was 99.96 % and 99.86 % respectively with a very low PRESS value of 0.094 in comparison with TGA. Thus, indicating that the XRF analysis predicts most acurately the LOI determination of ternary cement blend compared to TGA. In this research work, the developed models for indicated R^2 /R^2_{adj} values of 95.71 / 94.28 and 99.96/ 99.95 percent respectively indicating appropriateness of the developed model for the two factors with R^2 and R^2_{adj} value close to unity. Authors [24] and [25] stated that a better empirical model fit was obtained with the experimental data when the R^2 value is close to unity. It was observed that a relatively high R^2 value does not imply that the model is adequate, thus, [23] suggested that a R^2_{adj} of above 90 % is most appropriate to evaluate the model adequacy.

Table 5 – Model Summary Statistics/ Sequential Model Sum of Squares for CCD for LOI XRF

Source	Sum of Squares	DF	F value	Prob> F	Std. Dev.	R^2	Adj. R^2	Pred. R^2	PRESS	
Linear	63.51	2	92.55	< 0.0001	0.59	0.9487	0.9385	0.853	9.84	
2FI	3.40	1	1129.34	< 0.0001	0.055	0.9996	0.9995	0.9986	0.094	Suggested
Quadratic	7.16E-04	2	0.095	0.9107	0.061	0.9996	0.9993	0.9964	0.24	
Cubic	0.018	2	5.06	0.0628	0.042	0.9999	0.9997	0.9848	1.01	Aliased

Figure 1 indicates the normal probability and the predicted against the actual plots for LOI of the ternary cement blends obtained via TGA and XRF respectively. The normal probability plot indicated a strong linear pattern with only minor deviations from the line fit to the points on the probability plot for determination of the LOI of ternary cement blend obtained by TGA and XRF analysis in figures 1 (a) & (b) respectively. Thus, the normal distribution appears to be a good model for the set of data employed with the probability plot indicating a strongly linear pattern which is verified by the correlation coefficient of 98.46 % and 99.86 % of line of fit respectively.

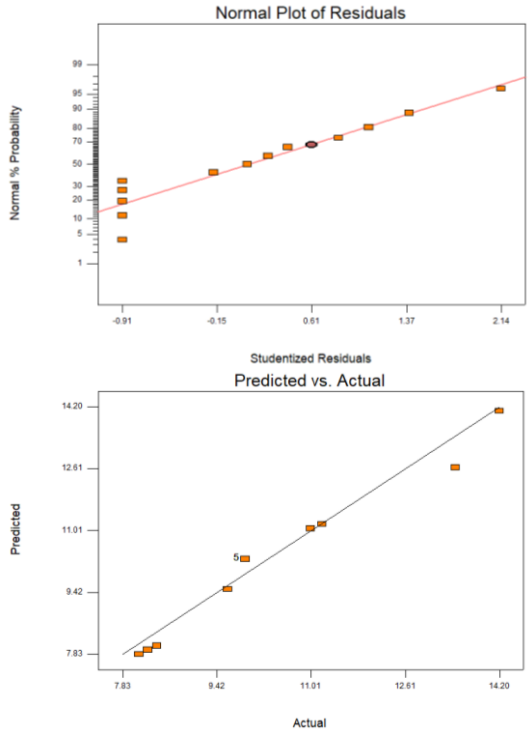

Figure 1 – Predicted vs Actual plot and Normal Plot of residuals indicating significance of the model developed for the LOI of ternary cement blend for TGA results

Figures 2 (a) & (b) indicated that there is a strong relationship between the predicted and experimental values for LOI of the cement blend obtained via TGA and XRF. Based on the results obtained, it could be inferred that the predicted model by Design Expert was significantly adequate in predicting the LOI of the cement blend obtained via TGA and XRF respectively.

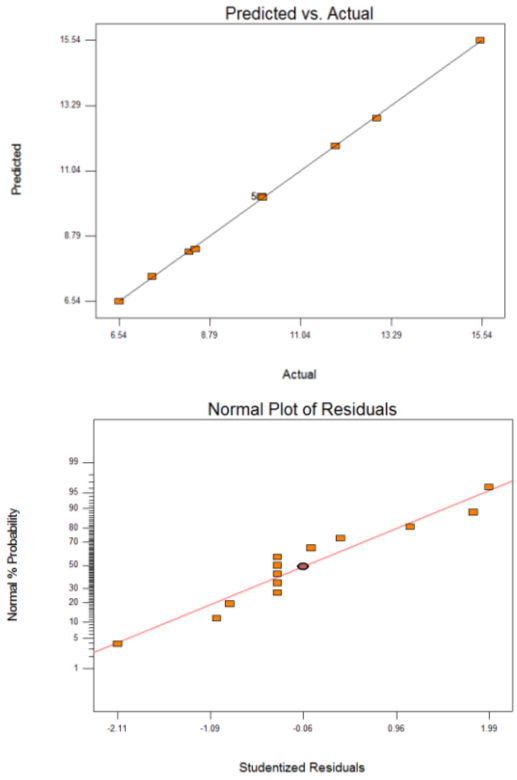

Figure 2 – Predicted vs Actual plot and Normal Plot of residuals indicating significance of the model developed for the LOI of ternary cement blend for XRF results

The relationship between the responses and the factors were further elucidated using contour plots and response surface plot. Figures 3–4 illustrates the contour and 3D response (3D) plots for the effect of factors X_1 (CBA/CBA-L ratio), X_2 (cement replacement level) on the first response Y_1 (LOI of ternary cement via TGA) and second response Y_2 (LOI of ternary cement via XRF) respectively.

Figures 5–8 illustrates the effect of CBA/CBA-L ratio at constant cement replacement level on the LOI of ternary cement from TGA and XRF analysis and the effect of cement replacement at constant CBA/CBA-L ratio on the LOI of ternary cement from TGA and XRF analysis respectively.

From the predictive model for the determination of the LOI via TGA, it could be seen that as the CBA/CBA-L ratio was held constant at 0.25 and the cement replacement was increased from 20–40 %, the LOI of the ternary cement blend increased from 11.18–14.09 %. Similar trend of an increase in the LOI of ternary cement was observed for other CBA/CBA-L ratios at 0.5 and 0.75 respectively.

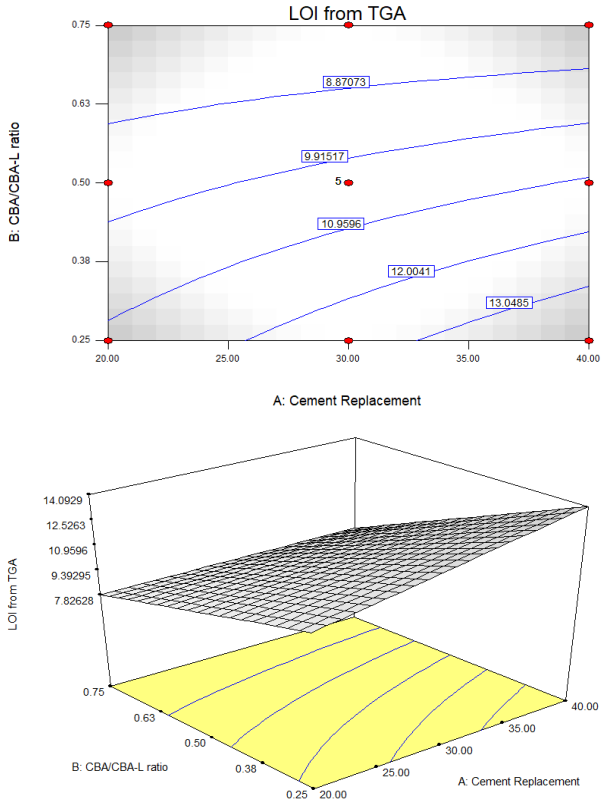

Figure 3 – Response surface plot (3 D surface and contour) showing the effect of different factors (X_1: CBA/CBA-L, X_2: cement replacement) on LOI of ternary cement blend for Two Level factorial model

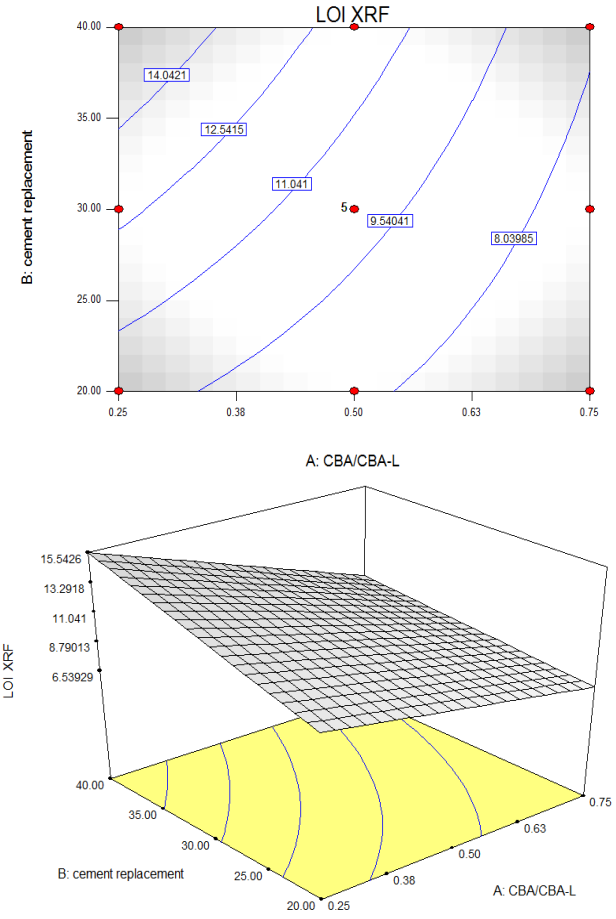

Figure 4 – Response surface plot (3 D surface and contour) showing the effect of different factors (X_1: CBA/CBA-L, X_2: cement replacement) on LOI of ternary cement blend for Two Level Factorial model

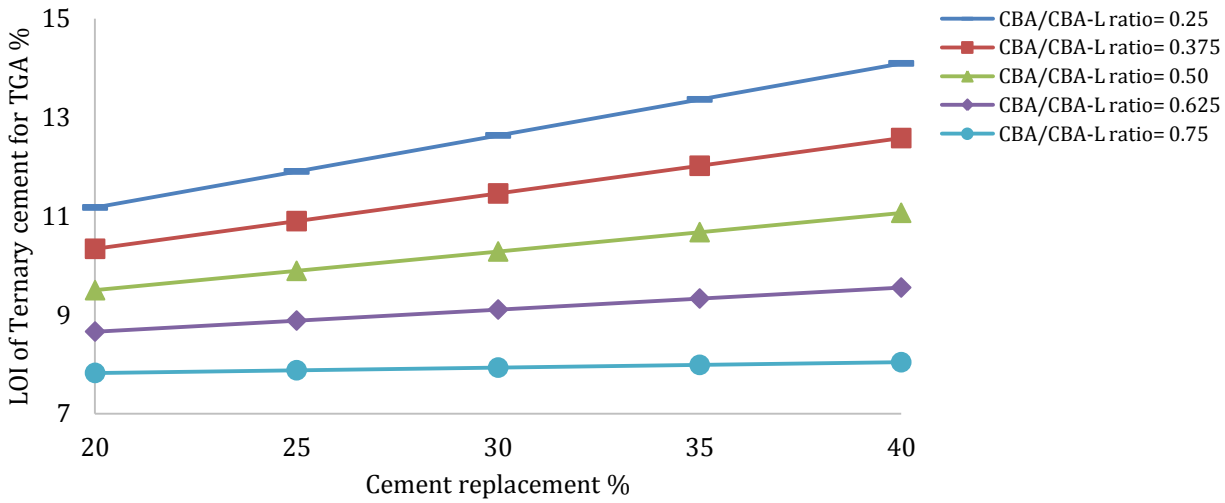

Figure 5 – Effect of cement replacement on the LOI of cement blends via TGA analysis at various CBA/CBA-L ratios

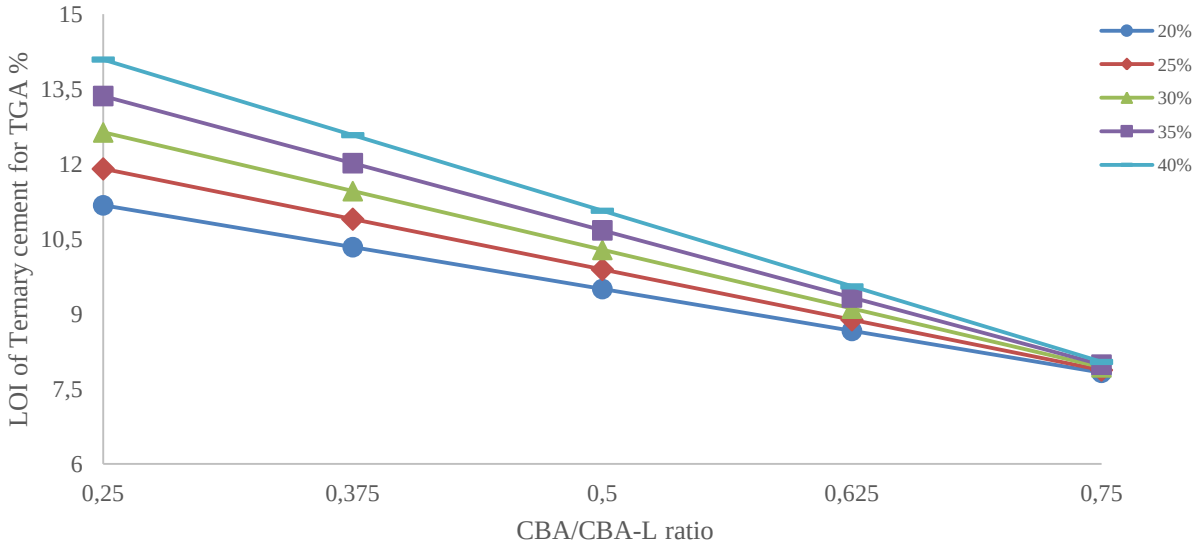

Figure 6 – Effect of CBA/CBA-L ratio on the LOI of cement blends via TGA analysis at various cement replacements

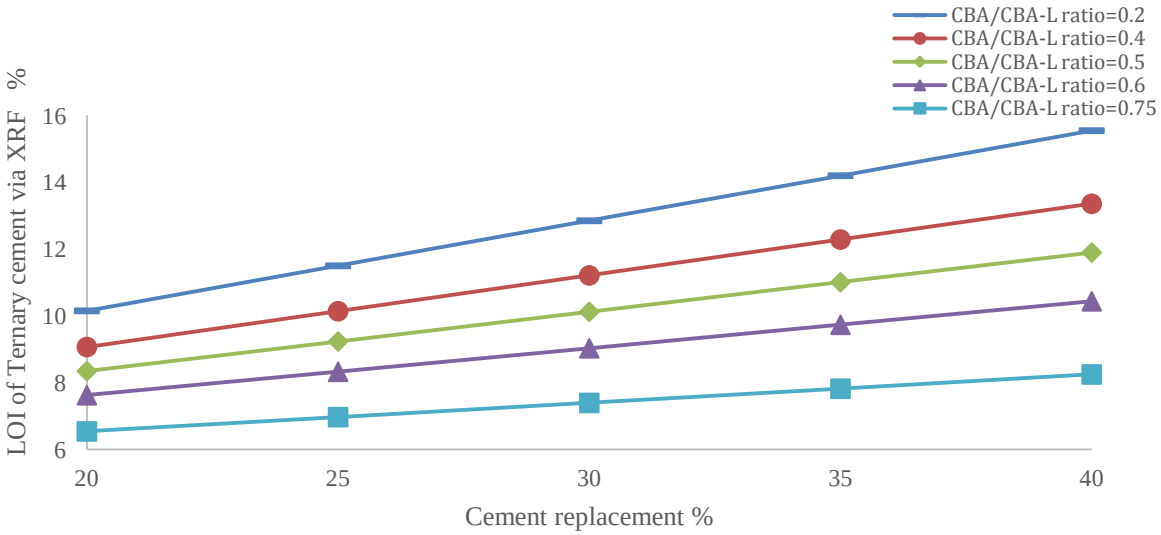

Figure 7 – Effect of cement replacement on the LOI of cement blends via XRF analysis at various CBA/CBA-L ratios

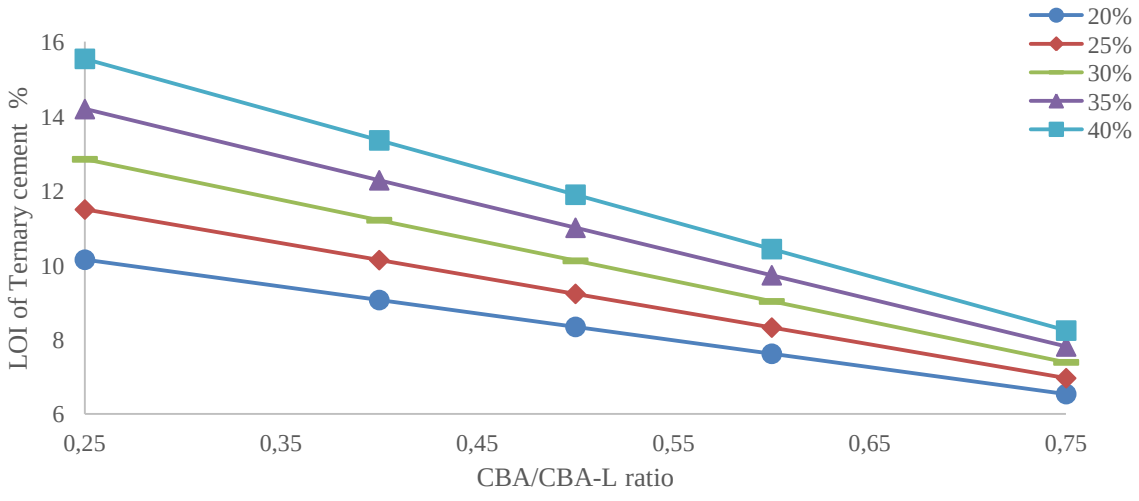

Figure 8 – Effect of CBA/CBA-L ratio on the LOI of cement blends via XRF analysis at various cement replacements

This decrease in the LOI of the ternary cement could be attributed to the decrease in the limestone content due to the high LOI of limestone according to [17] as the cement replacement was increased despite in increase in CBA content. Whereas, as the CBA/CBA-L ratio was increased from 0.25–0.75 at cement replacement of 20, 30 and 40 % resulted in a decrease in the LOI values of the ternary cement blends from 11.18 to 7.83 %, 12.63 to 7.93 % and 14.09 to 8.04 % respectively.

On the other words, the predictive model for the determination of the LOI via XRF analysis, it could also be observed that the LOI of the ternary cement blends increased as the CBA/CBA-L ratio was held constant at 0.25,0.50 and 0.75 as the cement replacement level was increased from 20–40%. The LOI of the ternary cement blends decreased as the CBA/CBA-L ratio was increased from 0.25–0.75 at constant cement replacement of 20, 30 and 40 % from 10.15 to 6.52 %, 12.85 to 7.39 % and 15.54 to 8.24 % respectively. This decrease could be attributed to the decrease in the limestone content as CBA/CBA-L ratio was increased which is responsible for the high LOI compared to CBA, since CBA LOI is quite low.

The LOI values obtained via XRF analysis were found to be more precise in comparison with TGA owing to the significantly high R^2 value of 99.95 % compared to 94.28 %.

CONCLUSION

In conclusion, the CBA/CBA-L ratio and cement replacement were found to have a significant and interactive effect on the LOI of ternary cement blend for TG and XRF analyses with the predictive models which both satisfied Two level Factorial model. Similarly, both responses indicated a gradually decrease in the LOI of the ternary cement blend as the CBA/CBA-L ratio was increased while the LOI of ternary cement blends increased as the cement replacement level was increased. Both responses experienced a higher LOI as the cement replacement of the ternary cement blends was gradually increased which could be attributed to the quantity of CBA and limestone presence during the thermal decomposition of the ternary cement blends. The ANOVA results indicated that the cement replacement produced a more significant effect on the responses in comparison with CBA/CBA-L ratio observed by the significantly high F value. Thus, indicating that the XRF analysis predicted most acurately the LOI determination of ternary cement blend compared to TGA with the developed models for R^2 /R^2_{adj} values of 98.46/ 97.36 and 99.96/99.95 percent respectively.

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Impacts of Effective Communication towards Performance of Construction Organization

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Abstract. The purpose of this study is to examine the significant impacts of effective communication towards the performance of the construction organization. The objectives of the study include to identify impacts of effective communication and evaluate the degree of agreement to which effective communication influence construction organization from construction contractors and consultants' viewpoint. A sample of 200 construction contractors and consultants were randomly selected from the Bureau of Public Procurement (BPP) database, out of which the responses rates received were 160 (80 %). Data analysis include Relative Importance Index (RII) for ranking comparison among the construction professionals on a scale range from 1-5 for rating their responses. Kendall's coefficient of concordance was used to evaluate the degree of agreement between construction professionals related to the ranking of each group of the practices. The results of RII revealed that improve productivity in the organization, reduce project delay, better safety precautions on construction sites, better use of materials and equipment and improve professional commitment to the organization are the top five impacts of effective communication towards the performance of construction organization. The results of Kendall's coefficient of concordance revealed that a high agreement between construction professionals occurred in the ranking of the impacts of effective communication towards the performance of the construction organization. The findings revealed that effective communication help to facilitate better understanding among all parties in the construction organization. It was recommended that stakeholders in the construction organization should adopt the use of effective communication tools and instruments for organizational performance.

Keywords: construction organization; construction professionals; effective communication; construction performance.

INTRODUCTION

The performance of construction organization constitutes an effective and efficient project delivery which has a great influence on industrial growth and production of infrastructure necessary to improve the living standards of a country [1]. However, for such to occur, the construction organization depends on the quality of relationships between the clients, professionals, contractors, subcontractors, technical workers and regulatory bodies [5]. This correlation is basically due to the fact that all the various stages of construction rely on the construction parties transferring appropriate and relevant information to planned, scheduled and controlled a project [12]. This according to [4, 9] emphasized that construction is an information-intensive industry since hundreds and thousands of piece of information need to be transferred and exchanged between various departments/units during the project life-cycle. Therefore, each department/unit in construction organization is responsible for disseminating the related information needed to formulate effective communication.

An effective communication plays a vital role in all stages of construction project which involves the exchange and flow of information and ideas from one person to another [2, 8]. Authors [9] asserted that as a construction project unfolds, communication occur in various directions which revolves from the organization to top management (upward communication), within the project teams (lateral communication), from superior to subordinate (downward communication)

and from subordinates to superior (horizontal communication). For instance, an architect prepares a general outline of client requirements after carrying out feasibility studies with the other consultants and communicates it to the rest of the members of the design team for collective action. As soon as the client approval is obtained, the architect and engineer start preparing the working drawings, schedules and specifications and at the same time seeking the opinion of the quantity surveyor who sees to the cost implication of the project to see if the project design is still within the approved budget. This goes on to all stages until completion of a project is achieved. Despite these roles, there seems little doubt that effective communication plays a vital role in the performance of construction organization. Hence, there is need for an extensive studies to be conducted on the impacts of effective communication towards performance of construction organization, taking into accounts construction contractors and consultants' views.

Accordingly, this study first presents the findings from relevant literatures in relation to effective communication. Next, the research methodology followed by discussions through the findings presented on the impacts of effective communications from construction contractors and consultants' viewpoint. The final section summarizes the conclusion derived from the research findings and present recommendation.

Communication plays a vital role in all stages of construction project delivery, from design stage through production, organization and management. Most of the researchers agreed that effective communication in construction organization could go a long way to deliver projects of desired quality, cost and on schedule time [13, 7, 8, 12, 18]. Therefore, the impacts of effective communication in the construction industry cannot be under-rated as they have the potential of eliminating inefficiencies arising from poorly constructed projects. For these reason, [12] acknowledged that if there is an effective communication between project team, accurate information will be quickly disseminated and consensus decisions achieved. Thus, prevent some ripple effects that may have been caused from misconception.

Authors [13] investigated communication in the construction organization and found out that by adopting effective communication during project delivery, it can help in meeting the predetermined cost and time of the project. Researcher [18] revealed that effective communication can help to achieve better time and cost management in producing a successful project. Authors [7] stated that lack of effective communication in the construction organization within a bilingual workforce raises a number of safety issues. Therefore, this implies that effective communications are geared towards performance of construction organization.

From the foregoing studies, the impacts of an effective communication in construction organization were identified, which were related to impacts on organizational efficiency and effectiveness. However, the study is geared towards determining the most significant impacts based on construction contractors and consultants' views. Hence, it is the gap of determining the most significant impacts of effective communication towards construction organization performance that is the motivation for this study.

RESEARCH METHODOLOGY

In order to collect the data, this study adopted qualitative approach before conducting quantitative analysis. The qualitative data of the study were based on a literature review and consisted of 20 impacts of effective communication which have been examined by previous researchers. A preliminary study was first carried out on a small scale of respondents to ensure clarity and avoidance of double barrel questions. Four of construction experts having strong background of construction business participated in the preliminary study. In total, 14 impacts of an effective communication as shown in Table 1, were selected by experts as the impacts of effective communication in Nigeria. Accordingly, the operational measures of these impacts were categorized into two groups of impacts on organizational efficiency and effectiveness. These impacts were used to construct a structured questionnaire for the pilot study. A total of thirty construction contractors and consultants participated in the pilot study. The respondents suggested few changes to the questionnaire regarding the wordings of the questions. The questionnaire was then modified based on the feedback, before it was finally used at the data collection stage.

Table 1 – Impacts of effective communication towards performance of construction organization

	Impacts	Authors
	A. Impacts on organizational efficiency	
A1	Improve productivity of an organization	[8]
A2	Reduce disputes in the organization	[6]
A3	Minimized accident rates on construction sites	[15]
A4	Better safety precautions on construction sites	[15]
A5	Improve professional commitment to the organization	[8]
A6	Increase organizational stability and flexibility	[18]
A7	Improve work quality	[18]
A8	Reduce project delay	[14]
	B. Impacts on organizational effectiveness	
B1	Improve workmanship	[2]
B2	Better use of materials and equipment	[5]
B3	Less supervision	[8]
B4	Reduce rework from unsatisfactory work done	[18]
B5	Reduce wastages of construction materials	[2]
B6	High performance and innovation	[17]

The questionnaire consists of two sections. Section A consist of respondents personal particulars such as; membership of professional bodies, years of experience, academic qualification and numbers of projects executed. In section B, each respondent was asked to rate the impact of effective communication on a five-point Likert scale ranging from 1 to 5, where 1 represents "Insignificant" and 5 represent "Very significant".

Sample structures

A sample of 200 construction contractors and consultants within F. C. T, Abuja was targeted in the survey, comprising 100 each of contractors and consultants randomly drawn from the Bureau of Public Procurement (BPP) database. Though, there are several methods of administering a questionnaire survey, direct delivery of the questionnaire by hand was preferred using the members' directory. Table 2 shows a summary of the sample responses of the questionnaire survey. From table 2, the response rates were 80 (80 %) each for contractors and consultants respectively. This was considered adequate for analysis based on the assertion by [10] that the result of a survey could be considered as biased and of little importance if the return rate was lower than 30–40%.

Table 2 – Sample responses of the questionnaire survey

Professionals	Number of questionnaire		Percentage returned, %
	Number administered	Valid for analysis	
1. Contractors	100	80	80
2. Consultants	100	80	80
Total	200	160	

Cronbach's Alpha Reliability Test

Cronbach's Alpha coefficient test is used for evaluating the reliability of the instrument. The measure is considered to be reliable if the value of Cronbach's Alpha coefficient equals or exceeds 0.70 [11, 16]. In this study, the values of Cronbach's Alpha Coefficient for the construct ranged from 0.783 to 0.867. Since these values were more than 0.7, the entire construct as well as the variables was believed to have demonstrated a good reliability to be measured on the same latent trait and scale.

RESULTS AND DISCUSSION

The data was analyzed using the Relative Importance Index (RII) comparison of ranking among the construction contractors and consultants.

The performance of each parameter was evaluated based on the importance weighting and the proposed efficiency of each variable. From the responses, RII was calculated using the formula below (1):

$$RII = \frac{5n_1 + 4n_2 + 3n_3 + 2n_4 + n_5}{5(n_1 + n_2 + n_3 + n_4 + n_5)}, \quad (1)$$

where n_1 represents the number of respondents who answered 'very significance', n_2 represents the number of respondents who answered 'significance', n_3 represents the number of respondents who answered 'moderately significance', n_4 represents the number of respondents who answered 'less significance', n_5 represents the number of respondents who answered 'insignificance'

The results of the RII from Table 3 shows that reduce project delay are ranked topmost by contractors and second by consultants. Also, improve productivity in the organization was ranked first by the consultants and second by contractors. Better safety precaution on construction sites was ranked third by contractors and consultants. Better use of materials and equipment was also ranked third by consultants and fourth by contractors. Also, improve professional commitment to the organization was ranked fourth by contractors and fifth by consultants. Improve workmanship was ranked sixth by contractors and fifth by consultants.

Table 3 – RII and ranks of contractors and consultants' responses

Construction organizations	Contractors			Consultants		
Impacts	S	RII	R	S	RII	R
Impacts on organizational efficiency						
Improve productivity in the organization	262	0.655	2	235	0.588	1
Reduce disputes in the organization	245	0.613	9	220	0.550	8
Minimized accident rates on construction sites	248	0.620	8	210	0.525	10
Better safety precautions on construction sites	260	0.650	3	225	0.563	3
Improve professional commitment to the organization	255	0.638	4	223	0.558	5
Increase organizational stability and flexibility	225	0.563	11	200	0.500	12
Improve work quality	240	0.600	10	218	0.545	9
Reduce project delay	265	0.663	1	230	0.575	2
Impacts on organizational effectiveness						
Improve workmanship	252	0.630	6	223	0.558	5
Better use of materials and equipment	255	0.638	4	225	0.563	3
Less supervision	250	0.625	7	223	0.558	5
Reduce rework from unsatisfactory work done	225	0.563	11	207	0.518	11
Reduce wastages of construction materials	220	0.550	13	195	0.488	13
High performance and innovation	215	0.538	14	190	0.475	14

Notes: S – Sum of responses; RII – Relative Importance Index; R – Ranking

Consequently, in order to have a general agreement in the ranking of all the impacts, Rank Agreement Factor (RAF) and PRAF was used to quantitatively measure the agreement in the importance ranking among the contractors and consultants. This is in line with the suggestion by [3].

$$RAF = \frac{\varepsilon QAEB}{N}, \quad (2)$$

$$RAF = \frac{RAF_{\max} - RAF_i}{RAF_{\max}} \times 100, \quad (3)$$

where RAF_{max} – maximum RAF, N – total number of impacts, and ƐQEAB – sum of the order of ranking by contractors and consultants.

The RAF can be >1, with a higher factor implying greater disagreement while a RAF zero implies perfect agreement [3]. The results of RAF are shown in the fifth column of Table 4. For 14 impacts of effective communication, RAFmax is 2.000.

Table 4 – PRAF of all the contractors and consultants

Impacts	Ctr	Csl	Sum	RAF	PRAF %	R
Improve productivity in the organization	2	1	3	0.214	89.30	1
Reduce project delay	1	2	3	0.214	89.30	1
Better safety precautions on construction sites	3	3	6	0.429	78.55	3
Better use of materials and equipment	4	3	7	0.500	75.00	4
Improve professional commitment to the organization	4	5	9	0.643	67.85	5
Improve workmanship	6	5	11	0.786	60.7	6
Less supervision	7	5	12	0.857	57.15	7
Reduce disputes in the organization	9	8	17	1.214	39.30	8
Minimized accident rates on construction sites	8	10	18	1.286	35.70	9
Improve work quality	10	9	19	1.357	32.15	10
Reduce rework from unsatisfactory work done	11	11	22	1.571	21.45	11
Increase organizational stability and flexibility	11	12	23	1.643	17.85	12
Reduce wastages of construction materials	13	13	26	1.857	7.15	13
High performance and innovation	14	14	28	2.000	0.00	14

Notes: RAF – ranking agreement factor; PRAF – percentage ranking agreement factor.

From the results of the PRAF in Table 4, top five impacts of an effective communication towards performance of construction organization are improve productivity in the organization, reduce project delay, better safety precautions on construction sites, better use of materials and equipment and improve professional commitment to the organization. These impacts are interrelated and have direct outcomes on the performance of construction organization. The results show you improve productivity in the organization as the topmost impacts of an effective communication. This agrees with the contention of [8] that effective communication may influence the productivity of an organization as it is managed by all departments/units in the organization. Reduce project delay was also revealed as the topmost impacts, which is in line with the opinion of [14] that effective communication are related to complete a project within time. The result also show you better safety precautions on construction sites as a significant impacts of an effective communication. This was corroborated by [15] asserting that effective communication results to satisfactory health and safety precautions on construction sites. Better use of materials and equipment was also revealed as one of the impacts of effective communication towards performance of construction organization. Author [5] acknowledged that effective communication brings about prudent use of resources in the construction organization. Improve professional commitment to the organization was also ranked as one of the significant impacts of an effective communication, which agrees with the contention of [8] that in order to foster professionalism in the construction organization effective communication must be brought to the attention of all the parties involved in a project.

Kendall's Coefficient of Concordance

To evaluate the degree of agreement to which effective communication influence performance of construction organization, two hypotheses was formulated. To test this hypotheses written below, Kendall's coefficient of concordance (W) was performed to estimate the degree of agreement between construction contractors and consultant' views related to the ranking of each group of the impacts, and whether this agreement is statistically significant. The range of the value W is between 0 and 1 (1 represents the perfect agreement between construction contractors and consultants, while 0 represents completely no agreement between construction contractors and consultants).

H1. There is no degree of agreement between construction contractors and consultants towards the ranking of the impact of effective communication on organizational efficiency.

This category consist of eight impacts of effective communication. The results from Table 5, indicates that Kendall's coefficient is found to be 0.952 and the p-value is 0.000 which is below the threshold of 0.05 significance level. In conclusion, there is a significant and strong degree of agreement between construction contractors and consultants towards the ranking of the impact of effective communication on organizational efficiency.

Table 5 – Impacts on organizational efficiency

Construction organizations	Contractors			Consultants		
Impacts	S	RII	R	S	RII	R
Impacts on organizational efficiency						
Improve productivity in the organization	262	0.655	2	235	0.588	1
Reduce disputes in the organization	245	0.613	9	220	0.550	8
Minimized accident rates on construction sites	248	0.620	8	210	0.525	10
Better safety precautions on construction sites	260	0.650	3	225	0.563	3
Improve professional commitment to the organization	255	0.638	4	223	0.558	5
Increase organizational stability and flexibility	225	0.563	11	200	0.500	12
Improve work quality	240	0.600	10	218	0.545	9
Reduce project delay	265	0.663	1	230	0.575	2
Kendall's coefficient	0.952					
Sig.	0.000					

H2. There is no degree of agreement between construction contractors and consultants towards the ranking of the impact of effective communication on organizational effectiveness.

This category includes six impacts of an effective communication. The results from Table 6, indicates that Kendall's coefficient is found to be 0.993 and the p-value is 0.000 which is below the threshold of 0.05 significance level. In conclusion, there is a significant and strong degree of agreement between construction contractors and consultants towards the ranking of the impact of effective communication on organizational effectiveness.

Table 6 – Impacts on organizational effectiveness

Construction organizations	Contractors			Consultants		
Impacts	S	RII	R	S	RII	R
Impacts on organizational effectiveness						
Improve workmanship	252	0.630	6	223	0.558	5
Better use of materials and equipment	255	0.638	4	225	0.563	3
Less supervision	250	0.625	7	223	0.558	5
Reduce rework from unsatisfactory work done	225	0.563	11	207	0.518	11
Reduce wastages of construction materials	220	0.550	13	195	0.488	13
High performance and innovation	215	0.538	14	190	0.475	14
Kendall's coefficient	0.993					
Sig.	0.000					

The overall results of hypotheses testing revealed that a high agreement between construction contractors and consultants occurred in the ranking of the impacts of effective communication related to organizational efficiency and effectiveness. This was confirmed by high Kendall's coefficient obtained within each category.

CONCLUSION

Drawn from the results that shows five topmost impacts of effective communication towards performance of construction organization, it revealed that the most significant impacts of an effective communication were common in organizational efficiency. Furthermore, the ranking of improve productivity of an organization and reduction of project delay as the topmost impacts indicates that construction organization were influenced by effective communication. This confirms the perceived low performance of construction organization. In view of the above, it was recommended that stakeholders in the construction organization should adopt the use of effective communication tools and instruments for organizational performance.

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Western Balkans Integration into European Union: Challenges and Consequences

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Abstract. This paper is intended to analyze the challenges and consequences of the integration of Western Balkans to the European Union. Specifically, in the first case, challenges of this integration path and in the second case the consequences as a result of eventual stagnation in this path. For more than a century, the Western Balkans region has been seeking its way of European transformation. The region remains in the agenda of European Union expansion, but even after two decades of promises, the integration of Western Balkan countries to EU is not certain. The integration journey is first of all closely connected to building the institutional capacities, adoption of laws, rules, norms and European behavior in the domestic policymaking. Therefore, the challenges are converted into obstacle or inability to the establishment of values, identity, institutional and social aspects in the Western Balkan countries, whereas the consequences are reflected as derivatives of failure to accomplishing the membership of the region to EU. Based on the research conducted on this issue, this study argues that such challenges as lack of rule of law, high levels of corruption and organized crime are derivatives of historical legacy and political elite efforts to capture the state or dominate certain state resources, as well as of the EU approach towards this region. This study is important particularly in this aspect and unequivocally presents the common and separate challenges of the Western Balkans towards integration into the European Union. Along with this realistic presentation, the consequences themselves appear which first of all are not only to the detriment of the Western Balkans.

Keywords: integration; challenges; consequences; European Union; Western Balkans.

INTRODUCTION

Following the fall of the Berlin Wall, the Central and Eastern Europe were pervaded by a democratic change wave which in turn culminated with the accession into the European Union (EU) in the period 2004–2007. The countries of the Western Balkans (WB) experienced a different fate from the Central and Eastern Europe countries. In the nineties of the previous century, these countries experienced consequent wars and destabilization politics whose origin may be sought in the historical legacy of the countries in the region, in the strategic decisions of the political elites and in the economic crisis that prevailed in the region during those years. All this disruptive situation resulted, on the one hand, from the weakening of the state, consequently the lack of rule of law, high levels of corruption and organized crime, extensive patronage and informality networks [2], and on the other due to the lack of a European perspective (in the 1990s, the EU was engaged in this region mainly in humanitarian activities), as well as doubling the European policy between stabilization and democratization towards the region [6, 8, 40]. Since the first initiative of the EU towards the region, along with the democratization, another very important dimension has been the stabilization. Such approach from the EU has been criticized by many scholars, who consider that the EU has favoured the second dimensions to the detriment of the first. This the EU behaviour towards the region has led to the use of the term stabilocracy by some scholars [7] to describe the political systems of WB countries. A stabilocracy according to Florian Bieber [8]", means 'a regime that is characterized by considerable deficiencies in the aspect of democratic governance, but it enjoys external legitimacy providing assumed stability'.

For Antoinette Primatarova and Johanna Deimel [41], a stabilocracy 'ensures external stability, but internally it sways between democracy and autocratic tendencies'. So, stabilization has two main features: one is the external support or legitimacy that is provided by the EU/EU countries as a result of the promise of developing democratic reforms, but above all, the promise of maintaining regional stability, while the other is the derivative of the former. The EU approach to the region, respectively the external legitimacy that local actors benefit from European countries, has left their way to adopting undemocratic and authoritarian power-holding and preservation practices "as discussed by Bieber [7, 8]" by utilizing democratic ways. Today 'autocrats in the Western Balkans rule through informal power structures, state capture by ruling parties, patronage and media control' [5]. In their overall nuances and features and contexts, more or less political systems in the WB countries are defective democracies [37], respectively competitive authoritarians [33]. All this context is also reflected in the February 2018 strategy 'A credible enlargement perspective for and enhanced EU engagement with the Western Balkans', where the European Commission distinguishes the main political challenges WB countries are facing in their path towards EU membership. These challenges include: rule of law, fundamental rights and good governance, strengthening of democratic institutions, economic reform/creation of a competitive economy, fight against corruption and organized crime as well as resolving the bilateral problems and deepening the regional cooperation [18].

Aim and objectives of the study

The main goal of this study is to identify the main political challenges WB countries are facing on their path towards EU membership and elaboration thereof. Another goal of this study is the dissolution or the dismantling of the consequences that would diverge for the EU as well as for the WB countries in case of failure of this region to get the membership in the EU. This way, the objective of the study is twofold. On the one hand, it is aimed at identifying and analyzing the political challenges faced by WB countries in their path of approximation and their ultimate membership in the EU. The other objective is focused ad dismantling the consequences deriving from non-membership of WB countries to the EU, both for the region and for the EU itself.

Research questions

1. What are the WB countries challenges on their path towards membership in the EU?

2. What consequences would the EU and the WB region face in case of non-membership of these countries in the EU?

Methodology

For research purposes, author used the comparative method applied in case studies. Referred to Bob Matthews and Liz Ross: 'Comparative researches often use the multiple case study model, which allows for in-depth study of each case, and aims to explain similarities and differences between cases' [36]. This way, the level of analysis in this study is twofold. On the one hand, we compare not only the challenges of the WB region on the path to EU membership, but also the disputes leading to emergence of these challenges, while on the other hand, we analyze and compare the consequences that would arise for the WB and the EU countries in case of non-membership of this region. The research strategy used to develop empirical research is the qualitative case study. The approach of case studies allows us to deeply analyze the challenges of the WB region. Inter alia, according to Robert K. Yin [51], a case study is first and foremost an 'empirical investigation investigating a contemporary phenomenon within its real-life context, especially when boundaries between phenomenon and context are not clear'. Thus, the empirical analysis covers the whole spectrum of national cases in the WB region, focusing on the will of the political elites and the role of historical legacy from the 1990s, respectively the challenges that have caused the occurrence of these two factors on the path to the EU membership. This variety of empirical cases enables us to compare the challenges between countries and contexts. To respond to research questions, this study is based on existing literature and sources such as European Commission reports, OSCE/ODIHR reports, field research, articles and newspaper interviews.

RESULTS AND DISCUSSION

Theoretical framework: From Balkanization to Europeanization: The multi-level process of WB integration in the EU

The 90s of the last century were dramatic for the WB region. On the one hand, the inter-ethnic conflicts broke out leading to the violent disintegration of Yugoslavia, while on the other side Albania's 1997 plunge into riots led to almost decline of the state. All these events, in the literature, were reflected in terms such as 'delayed transition', 'double transition' to the term 'Balkanization', which means fragmentation or division of the whole into small pieces. However, the term 'Balkanization' opposes the concept of Europeanization, which primarily implies integration, respectively referred to Claudio Radaelli [42], Europeanization has to do with a process of: 'a) construction, b) diffusion, c) and institutionalization of formal and informal rules, procedures, policy models, styles, ways of doing things and common norms or beliefs that have been established and consolidated at the EU policy level, which are then included in the logic of local discourse, identity, political structures and public policy '. In this way, Europeanization emerges as a theory which first of all investigates the impact the EU has on the internal change of states, which is generally influenced by the three dimensions of politics: policy, politics and polity [14]. Impacts on the internal change of states are exercised by the EU through the mechanisms of socialism, externalities, imitation and first of all and foremost through the conditioning mechanism [45]. According to Tanja A. Borzel [9], 'conditionality can have a decisive influence on the readiness of countries to meet the EU standards and to enforce its obligations '. However '1) internal reforming elites should be able to prioritize the EU requirements and 2) functional state institutions should be able to coordinate and carry out field reforms'[15] However, in the WB region, both dimensions have shown to be incapable of supporting and implementing the Europeanization process. On the one hand, political elites are ineffective, corrupt, self-interested in capturing the state or certain state segments or sources, so generally reformist elites have seemed weak to undertake reforms and radical changes [14, 1, 7]. On the other hand, weak administrative and human capacities (human resources tend to migrate abroad), extensive patronage networks, historical legacy and other illnesses make the process of WB Europeanization seem to be among the most difficult [1, 4]. All this context and experience with past enlargements has pushed the EU to undertake a new expansion approach that "has transformed the standard expansion policy, which was previously applied to candidates" [15] Different from the Central and Eastern Europe countries, where:

'conditionality was an integral part of the integration process, designed as an instrument to force candidate countries to meet the legal, economic and technical requirements of EU membership in the Western Balkans, the EU used conditioning at a very early stage' [13].

So we have a move from what is known as 'Europeanization through enlargement' [14] to 'Europeanization before accession' [13]. However, unlike the Central and Eastern European countries, the process of Europeanization in the WB region spans a broader range of issues ranging from 'security and peacebuilding, border issues, reconstruction and development, and the transition agenda, to the post-communist association' [1]. So in WB's case, we are dealing with a multidimensional process of transformation involving the post-communist, post-conflict and post-nationalist transformation' [15]. Throughout this multiple processes of transformation, the focus of the analysis of this study will be the will of the political elites, respectively the response of local stakeholders to these challenges and the role of the political heritage of the 1990s in the integration process.

Challenges of WB Countries on Their Path towards Membership in the EU

Historical Legacy from the First Transition: Responses of Elites to it

In the WB region, unlike the experiences of Central Europe and Baltic countries, the communist regimes were replaced, and somewhere they were transformed into competitive authoritarianism, the legitimacy of which was different. While in Albania the promise of building democracy and raising prosperity was the main legitimizing premise of the regime in Serbia, nationalism and nationalist mobilization served as the main weapon for the legitimacy of the communist elites now transformed into a nationalist.

However, due to the failure to meet these agendas, in the late 1990s most of these regimes broke down almost throughout the entire WB region, but they left behind them a political legacy that turns out to be destructive, not just for democracy but also for the state's capacity and capabilities to act. Referring to Othon Anastsakis, there are five legacy dimensions from the transition of the 1990-ties that the WB countries are facing. These areas include personal clashes; national and ethnic agendas; high-level corruption; people's discontent [2].

Personal Clashes: Personalization of politics and political battles – is a characteristic not only of the first transition but also to what is known as a second transition. The failure to initiate a transition by agreement and then the failure to reach a consensus on the modalities of transition led to the fragmentation of the political scene, namely its polarization. Consequently, this situation led to the failure to establish strong and stable institutions and incited the creation of undetermined ideological agendas and paved the way for personal ambitions [1]. All this resulted in the concentration of power in the hands of individuals, respectively led to the establishment of presidential; semi-presidential political systems.

'The establishment of presidential or semi-presidential political systems and the limited impact of controls and balances allowed personal policies to develop and root themselves in the political process of most countries, whereby power-sharing and co-existence agreements became a personal struggle for power and political survival' [2].

Even after the break-up of these regimes and the constitution of parliamentary systems, polarization between political forces, respectively between leaders, is present. Referred to Valerie Bunce [11], polarization resulted to be harmful for the political competition. Political competition is one of the basic conditions for holding free and fair elections, yet polarization undermines it, and thus violates the elections, which are the basic principle of democracy. Such election problems that cause distortion of election results such as phantom voter turnout or inaccuracy of voter registers, threats and pressure on voters, and vote buying, bias or favouring some parties in coverage of electoral activities by the media, non-eligibility between state and electoral activities, use of state resources for electoral purposes, multiple vote, political influence on the Election Commission [31], are present in all WB countries. All these problems are a derivative of polarization, which translates into unspecified political behaviour or extreme positions simplified in a fierce struggle for power, which then promotes competition, respectively personal political ambitions for seizing and controlling state resources to raise and maintaining dominant positions on the political scene. The entire such situation creates a suitable habitat for networks of patronage, nepotism, corruption as well as organized crime. However, despite the similarity in this aspect, the trajectories of rising to dominant positions, or even the decline of these positions of certain elites has been different amongst WB countries.

While in Serbia, with the fall of Slobodan Milosevic's power, between the coalition partners, the Democratic Party of Serbia (Demokratska Stranka Srbije: DSS) of Vojislav Kostunica and the Democratic Party (Demokratska Stranka: DS) of Zoran Djindjic and later Boris Tadic began a fierce competition for dominating the political stage and the state resources [43]. This competition was won by the DS as a result of the broad international support it enjoyed, thanks to its image of a liberal Pro-European party. Nevertheless, as Florian Bieber [7] expresses, the DS reformists turned to be only: 'builders of institutions hesitating [..., who] instead of decisively decapitating undemocratic practices, continued to rely on them and often did not want to strengthen the independence of the institutions and the Constitution'. This hesitation of DS reformists was condemned in the 2012-2013 elections, which in power brought the Serbian Progressive Party (Srpska Napredna Stranka: SNS) of Aleksandar Vucic, who is the dominant political figure in Serbia, whose power is compared to that of Slobodan Milosevic in the 90-ties[48]. So in Serbia, the trajectory has gone from the dominance competition to the total domination of Aleksandar Vucic.

In Albania, the transition since its beginnings has been followed by an extreme polarization between the main political forces of the Democratic Party (Partia Demokratike: PD) and Socialist Party (Partia Socialiste: PS) whose effects have touched the vital functions of the state, thus undermining the capabilities and capacity of the state because of their inrush with party militants. However, despite that, no party in Albania has

managed to maintain dominance for more than eight years. Milo Djukanovic's dominance continues in Montenegro as a result of a combination of internal factors, such as ethnic divisions on the basis of which clientele and external networks have been organized. Milo Djukanovic and his party machine have profiled themselves as a Western party, while on the other side there are pro-Russian opposition parties in such a situation. In Northern Macedonia after a decade-long dominance of Nikola Gruevski, which in the European Commission's report of 2016 was considered a seizure of the state, which had the negative impact 'on the functioning of democratic institutions and key societal areas', the change came in the 2016 election, where Zoran Zaev's SDSM managed to form the government, while the latter was elected prime minister. Bosnia and Herzegovina presents the most complicated case in the WB region due to how the state is organized and functioning. The organization and functioning, respectively the division of the country on an ethnic basis and the institutionalization of ethnicities have created a habitat suitable for ethno-nationalist parties to exercise control over the ethnic entities to which they belong. In this way, in Bosnia and Herzegovina we are dealing with feudalism of power, where each ethnic-nationalist party exercises control over its feud. This way of exercising power shows that although there is a crucial division in Bosnian politics, Bosnians, Serbs and Croats have a similar vision of "completely patrimonial power dominated by great man [38]. In Kosovo, since the end of 2007, the Democratic Party of Kosovo continues to be in power, which during this time has shared power with various Albanian parties and with Serbian minority and other minorities, however, this party has maintained its dominant positions over state resources.

Nationalist and ethnic agendas – in the 90-ties were the core of the political parties' projects. Moreover, these agendas have served as a legitimate basis for certain leaders or parties such as in Serbia, Bosnia and Herzegovina, or Northern Macedonia. However, with the end of the Kosovo conflict, the fall of Slobodan Milosevic's power and the signing of the Ohrid Agreement as the basis for the end of the inter-ethnic conflict in Northern Macedonia, the EU initiated the process of transforming this ethnic-nationalist context. The process of de-nationalism has the regional co-operation as its main mechanism, respectively the initiation and deepening of cooperation. Through this process and its mechanism, the EU aims to create economic and political interdependence between the WB countries and consequently the cultural diversification of the countries of the region. 'The importance of regional cooperation is highlighted by two main benefits. First, it reduces tension and strengthens regional stability [...] and secondly, it brings various practical benefits' [32]. However, despite this the EU investment, the deepening of regional cooperation is hampered by Serbia's dispute regarding Kosovo and other bilateral and inter-ethnic problems between and within the countries of the WB region. Stability and regional sustainability are threatened by ghosts of the past. Nationalism continues to be emphasized in Serbia. Today, there are governing parties that ruled during Slobodan Milosevic's era, while the latter is considered by President Aleksandar Vucic to be a great leader with good intentions but poor results [12]. So in this way, Aleksandar Vucic crosses Slobodan Milosevic for lost wars, but not for their commencement. This approach, first of all, proves that while 'conservative and radical socialist parties in Serbia change and reform, they are always the remnants of the conflicting context of the 1990s' [2], and flirtation or nationalist feelings continue to remain one of their major dimensions of discourse and politics. In Northern Macedonia, after the inter-ethnic conflict and the successes of liberal politics, ethnic politics continued to be the focus of political projects. VMRO-DPMNE of Nikola Gruevski, which dominated Macedonian politics for ten years, is the best illustrative example of this approach. During VMRO-DPMNE's governance, populism and ethno-nationalism were the two main dimensions of leading elite' policies and discourses. This discourse was also reflected in the 2016 election, when the SDSM's liberal-civil project opposed the fears of Nikola Gruevski's nationalist rhetoric.

'During the electoral campaign Gruevski used nationalist rhetoric, relying mainly on the language of fear in the sense of redefining and separating the state from foreign and internal enemies. This rhetoric was often pushed to the extreme, as Gruevski alluded to the possibility of a violent conflict' [47].

This nationalist discourse that fostered fear of the other aimed at creating an extreme ethnic

polarization that would secure and consolidate a government mandate for VMRO-DPMNE. In Bosnia and Herzegovina, the Dayton agreement institutionalized ethnic agendas. The constitution is designed and organized in such a way that it distributes power. However, the basis that has served as the foundation for power distribution is the ethnic basis. So, all political life in Bosnia and Herzegovina today is organized on an ethnic basis, including electoral zones. All this has created a habitat suitable for continuing and strengthening the discourse and nationalist agendas which remain the number one preference for voters [39]. "Ethno-nationalist political parties have dominated the political sphere in Bosnia and Herzegovina from the first democratic elections held in the early 1990s'. The dominance of these parties continued even after the end of the conflict and the reaching of the Dayton Accords: 'Such a preference for rigorous ethnic parties by the BiH electorate has been repeated in every election with the exception of the year 2000, when the Social Democratic Party (SDP), one of the rare examples of multi-ethnic political parties in Bosnia, won the elections. So, what has happened to Bosnia is not a democratic transition, it rather is an ethnocratic transition' [10]. As a result of the dominance of these ethnonationalist agendas, Bosnia and Herzegovina continues to be a controversial country on the one hand from Republika Srpska (Serb ethnicity within Bosnia) whose leaders have repeatedly repeated the threats of holding a referendum on independence, and on the other by Croat ethnicity, who consider that they are discriminated against, and in 2000 and then in 2011 they organized illegal forms of self-government [30]. Kosovo similar to Bosnia and Herzegovina continues to be contested by the local Serb community, especially those from the northern part, who continue to reject integration in the Republic of Kosovo, as a result of their instrumentalization by the leaders and politics of Serbia, which contests and refuses to recognize Kosovo's independence. Against Kosovo's statehood, since the day of the declaration of independence, Serbia has undertaken diplomatic offensives which tend to impede its international affirmation and consolidation. While in the internal and regional plan, this relationship is occasionally accompanied by provocations and tensions that best represent the unstable situation of the region. We would draw attention to some time ago blockages of streets by local Serbs through barricades or trying to drive in a Serbian train with nationalist inscriptions in the territory of Kosovo. For resolving these disputes, the EU has initiated a dialog between the two countries since 2013; however the dominant agendas in this process continue to remain ethnic agendas. Even in Montenegro, just as in Macedonia, Kosovo and Bosnia and Herzegovina, party structuring is organized on an ethnic basis where Montenegrins are represented or gathered around the party of Milo Djukanovic, while on the other side there are Serbian nationalist parties that are in opposition. So in general, in the WB region 'ideologies along the right-to-left line remain the second in voter preferences, which continue to vote according to nationalistic and ethnic agendas' [2] , only Albania has shown to be immune from this symptom.

High Levels of Corruption – which in the beginning of transition has been a major problem for WB societies in the region. Rosa Balfour and Corina Stratulat [3] discuss a uniform scenario involving the political elites of all Balkan countries. This scenario first assumes that in the moments of political and economic transformations, political elites used the vacuum created so that political and economic reforms are compiled in accordance with their personal interests and status. This strategy proved to be successful in many countries, which made it difficult to distinguish between politicians, businessmen and magistrates. In these cases, 'the government acted more as a clenched hand than as an invisible hand and intentionally induced partial reforms to the general goal of seizing the state'. According to Othon Anastasakis [2], the beginning of transition determines its continuation, respectively 'early transition years lay the foundations for a climate of corruption'. Such a corrupt climate despite its improvement during 2008-2011 (see metering indices) has followed and continued to dominate policy at the highest level in all WB countries. Today the WB region is one of the most corrupt in Europe, while the problems lie in a wide range of issues identified by the European Commission reports. Referring to the European Commission's 2018 reports on the WB countries, it appears that in terms of the fight against corruption, countries like Serbia, Albania, Montenegro, North Macedonia and Bosnia and Herzegovina have a level of preparation compared to Kosovo, which is defined as a country that is at an early stage of preparation and at the same time has a level of preparation (see European Commission reports for each country for 2018).

These Commission Reports highlight weaknesses in the fight against corruption. These issues include: weak institutional capacities and lack of inter-institutional cooperation; Concerning remains the unwillingness of governments to strengthen the role and ensure the independence of the institutions dealing with the fight against corruption; bringing corrupt cases of high political levels to justice and confiscating property from crime continue to stagnate; the non-financing of political party financing also continues to be a problem that requires solutions (see European Commission reports for each country for 2018).

Political Elites: From the Competition to Domination and the State Capture

The EU's February 2018 strategy towards the WB region states, inter alia states that 'countries show clear elements of state capture, including links to organized crime and corruption at all levels of government and administration, and a strong confusion of public and private interests'. The capture of the state under Transparency International (2009) represents the situation in which some powerful persons either institutions or groups of individuals shape the political and economic environment of a country in their favour through the instrument of corruption [50].

However: 'capture of the state can be widely understood [as well] as disproportionate and unregulated influence of interest groups or decision-making processes, where particular interest groups reach to disseminate laws, policies and regulations of the state through such practices as illicit contributions paid by private interests for political parties and elections, campaigns, parliamentary purchase of votes, purchase of presidential decrees or judicial decisions, as well as through illegal lobbying and rotation appointments' [35].

So, in its entirety, the capture of the state is understood as appropriation or control of state resources by elites, which then use these resources either for personal gains or for political gains, thus causing the deformation of the democratic process [28, 26]. Forms of state capture and capture types are different, for Lily Evelina Sitouris [46] in discussing the type of state capture, the emphasis should be on the institutions that are the subject of capture and the type of actors that aim at capture in the wake of this logic referring to Mihaly Fazekas and Istvan Janos Toth [27], the capture appears to us to be of two types: local, which means entering into a relationship captured only by some public and private organizations, thus leaving a certain number of 'islands' relatively autonomous and global, which presents the situation when an elite at the national level controls the captured organizations that are related to each other. Even in the type of state capture provided by Abby Innes [29], the capture of the state appears to be of two types: capture of the state by the party and capture of the state by corporations. The former implies the politicization or repopulation of state institutions by political parties in order to pursue and secure political monopoly, while the latter is defined as the exercise of power by private interests through the overthrow of legitimate channels of political influence. However, in the case of the countries of the WB region, we are dealing with the first type, that is, with the capture of the state by the party, where after the progress of the early 2000s in the construction of independent institutions we already have a politicization of these institutions and party control over them. 'This reassurance of party control is articulated through the erosion of independent institutions, the penetration of state administration by party members and the use of informal mechanisms to provide control '[7]. Instruments used for appropriation or control of state resources by the elites are different, however referring to Arolda Elbasani [16] in the case of Albania we are dealing with the capture of the state through the mechanism of the judiciary. Characteristics similar to that of Albania show all WB countries where the functioning and independence of the judiciary are seriously violated. According to the European Commission's 2018 reports, WB countries are considered to have reached a level of preparation in the judicial system field except for Kosovo, which is considered to be at an early stage of preparation (see European Commission reports for 2018). However, despite the distinctiveness of the rating, all countries throughout the WB region face similar problems in establishing the rule of law. Serbia since 2015 is considered to have achieved a level of preparation in the area of judicial system [17], but the progress achieved since then has been slow. Serbia's justice system continues to suffer from political influences; constitution and legal framework still leave room for political interfer-

ence. Pressures on the work of judges and prosecutors, as well as commentary on court cases by individuals at high political levels remain high. Furthermore, government control over the media and selective justice and impunity continue to be serious problems that oppose the establishment of rule of law. In Albania, the justice system characterized by profound politicization, biased justice, corruption, links to crime and politics, is presented as the weakest chain 'Achilles heel' of the system throughout the post-communist transition. To change this situation, a comprehensive justice reform has been initiated, with the aim of building the institutional and human capacities needed to ensure the rule of law. However, the speed with which this reform is being implemented and the political environment in which it is developing are two of the main concerns for the future of this reform and with it the justice system in general.

The justice system in Northern Macedonia, like that of Montenegro, Kosovo, Bosnia and Herzegovina, has the same symptoms emerging in Serbia and Albania. Political interventions and impacts on the justice system, biased justice and lack of media freedom, commentary on judicial cases by senior government officials, corruption and links to organized crime are evident in each of these states (see European Commission reports on the year 2018). Thus, in general, the rule of law in the WB region remains weak due to the lack of willpower of the elites to strengthen the justice system, as this would also mean breaking the authoritarian practices and informal networks. Keeping the justice system weak, the political elites have succeeded in extending their power through corruption, clientelism, nepotism, patronage. The flow of state institutions and companies from party members is evident in all countries of the WB region. Contribution and loyalty to the party remain the two main premises for recruiting new members against whom the party has countermeasures that ensure their retention, such as the promise of employment and advancement, temporary positions, insecurity or fear of losing the job. However, in this entire state capture venture, ethnic divisions also contribute to Bosnia and Herzegovina, North Macedonia, Montenegro and Kosovo, as well as the EU's own approach towards the region has its contribution too.

'EU conditionality not only failed to effectively address state capture, but also inadvertently contributes to the consolidation of such processes by enabling informal networks to strengthen their control over power' [44]. According to Solveig Ritcher and Natasha Munsch, there are three causes that transform EU's conditionality into an instrument that helps in consolidation of the state capture: Firstly, in the absence of a comprehensive legal framework, the external pressure to liberalize the markets created favourable conditions or allowed a small political and economic elite to generate private benefits and influence political decision-making through powerful informal networks; Second, the powerful top-down conditionality eliminates almost any discussion on the domestic political scene and undermines the internal accountability mechanisms [44]. However, among other things, the EU's conditionality, especially in the area of rule of law and the fight against corruption, has been centred on what Jovana Marovic [34], says in quantity bypassing the quality by creating the right ground for governing elites to silence internal opponents; Thirdly, the interaction between the governing elites of the WB region countries with the EU officials or member states' officials or legitimacy benefiting WB's elites and leaders within this interaction [44].

'The rise of strong Balkan rulers, such as Nikola Gruevski (Republic of Northern Macedonia), Milorad Dodik (Republika Srpska, Bosnia and Herzegovina), Milo Djukanovic (Montenegro) and Aleksandar Vucic (Serbia), and their party machinery, occurred under EU observation and often with silent support and approval. These autocratic minded leaders - of course, self-proclaimed as democratic and pro-European have been able to stand unmatched in their domestic political arena because there is no democratic acquis to bring the monopoly of power, organization of party and competition or informal practices' [49].

Possible consequences for WB and the EU countries in case of non-membership of the region in the European family

First scenario: Escalation of the Situation. Any forecast for the integration perspective of WB countries in the EU depends on three sets of factors: internal factors, regional factors and external factors or factors within the EU and its member states. The geopolitical orientation remains the key parameter for WB's integration into the EU. Today, when the new world order is facing

international terrorism, energy and financial crises, from the rise of authoritarian regimes and their new transcontinental alliances, the WB region still faces challenges and instability. Enlargement policy was and remained the most dynamic and successful the EU policy, but in the case of WB a hesitation is noticed. Today, even after 20 years of direct interference with the international community, the security situation in the WB region continues to be unstable. This situation led by a semi-authoritarian mentality leads us toward the premise of a fragile stability, with possibilities and potential for further escalation. The consequences of this escalation are serious obstacles to WB's progress towards integration into the EU. The democratic deficit within the EU is another element contributing to this situation. Double standards for the same criteria are explicit evidence for the escalation of this situation. The EU must be clear and straightforward that such a situation does not fall into the ruins of the end of the last century.

Second scenario: Implication of third actors: Division of WB into zones of influence. If regional instability rises due to lack of the EU courage, this would make the Balkans fertile land for foreign interventions. The Balkans is a competition arena between the foreign powers, drawing Russia, Turkey and China to a corner of Europe that has been largely under the influence of the EU and the US since the Yugoslav wars. To keep Russian and Chinese ambitions under control, Washington is ready to work with the EU to protect the interests of the West. Enlargement critics are right when they say that the quality of democracy and the rule of law in the Balkan countries are below the EU standards, but the WB needs the EU integration to relegate the many problems and challenges. The EU is putting as a condition for the eradication of organized crime and corruption, but is cutting funds along with the World Bank and other Western lenders for WB countries, enabling China to fill the void. Meanwhile, Balkan diplomacy experts say Russia has worked and is working hard to boost the impact on this part of Europe. WB is currently an arena of collisions between Russia on the one hand and, on the other hand, the US and the EU. In this situation, the membership of the entire WB in the EU is not simply a choice of Balkans, but also of EU itself.

CONCLUSIONS

Problems such as the lack of rule of law, high levels of corruption and organized crime, mismanagement, clientelism and nepotism are only derivatives of the irresponsible behaviour of political elites, namely the result of personal political ambitions for domination and capture of state resources. In this way, the political elites are the primary challenge in the path of the WB region towards the EU, the creation and emergence of democratic political elite, which is willing not only to transform the region's historical heritage but to build democracy and embed European values. Among other things, a challenge for the region on the journey to joining the European family remains the EU's own approach to WB. Taking into consideration the stability of the region, the EU, other than creating the space for capturing the state, has, in most cases, even legitimized the capturing leaders. Thus, the democratization of WB societies remains only a discursive dimension of the leading EU elites. Transformation of this approach and the persistence in the democratization of these societies remains critical for the future of the WB and the stability of the region and even of Europe. In the European Union, where the interests of member states dominate, allowing the new members to be blocked on their behalf would turn back the idea of this European project. In recent years, there has been a rise in euro-scepticism and the dilemma about enlargement, as member states and their citizens have been tired of previous enlargements. Yet now there seems to be hope for better. Election Results for the European Parliament held between 23 and 26 May 2019 have removed the dilemma of endangering the European Union's enlargement project with the Western Balkan countries. Pro-European parties have taken 80 percent of parliament seats. This is good news, because the anti-EU parties that have lost the majority are the ones that most opposed the EU's enlargement policy towards the Western Balkans.

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