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BUILDING EVIDENCE FOR THE IMPACT OF OLDER ADULT LEARNING ON ACTIVE AGEING: A QUANTITATIVE STUDY

ABSTRACT

Lifelong learning constitutes one of the pillars of active ageing on the basis that learning reinforces wellbeing and enables older people to stay healthy and engaged in society. This paper reports on a pretest-posttest study carried out at the University of the Third Age in Malta that measured the impact of late-life learning on levels of active ageing. The findings demonstrated that participation in older adult learning has a strong positive impact on the participants' levels of active ageing and constitutes a resilient source of social capital in later life, and that people who presumably have had positive early experiences of education are more motivated to engage in late-life learning. The paper concludes that lifelong learning in later life acts as a possible mitigation to the social isolation, cognitive impairment, and age discrimination that people tend to experience in later life.

Keywords: *University of the Third Age, social capital, successful ageing, Malta*

ZBIRANJE DOKAZOV O VPLIVU UČENJA STAREJŠIH ODRASLIH NA AKTIVNO STARANJE: KVANTITATIVNA ŠTUDIJA – POVZETEK

Vseživljenjsko učenje je eden od temeljev aktivnega staranja, saj učenje krepi dobro počutje in tako omogoča starejšim ljudem, da ostajajo zdravi in vključeni v družbo. Članek poroča o študiji tipa prej-potem (pretest-posttest), izvedeni na Univerzi za tretje življenjsko obdobje na Malti, ki je merila učinek, ki ga ima učenje kasneje v življenju na aktivno staranje. Ugotovitve so pokazale, da ima učenje starejših odraslih močan pozitiven vpliv na stopnjo aktivnega staranja udeležencev in zanje pomeni vir socialnega kapitala, hkrati pa so ljudje, ki so imeli v zgodnjem življenju pozitivne izkušnje z učenjem, bolj motivirani, da sodelujejo pri učenju tudi kasneje. Članek ugotavlja, da vseživljenjsko učenje pri starejših odraslih lahko blaži socialno izolacijo, kognitivno oslabitev in starostno diskriminacijo, ki se običajno pojavijo pri starejših.

Ključne besede: *univerza za tretje življenjsko obdobje, socialni kapital, uspešno staranje, Malta*

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INTRODUCTION

The terms "active ageing" and "lifelong learning" have become catchphrases of our era, slogans bandied about in conferences, symposia, and seminars by academics, policy-makers, trade unionists, non-governmental organisations, and employers alike (Formosa, 2019b, 2019c). This is both welcoming and promising since one does not have to go back many years to when the adage "you cannot teach an old dog new tricks" was an unfailing assumption across all facets of the social fabric (Findsen & Formosa, 2011). However, while one finds many research articles highlighting how learning in later life constitutes a key determinant of active ageing (e.g. Boulton-Lewis & Buys, 2015; Tam, 2013), generally such studies followed a qualitative methodological framework. Indeed, quantitative enquiries that assess the impact of older adult learning on active ageing and which provide confirmatory statistical evidence remain elusive. It is certainly not enough to merely associate participation in older adult learning with the ideals of active ageing, especially since the assumption that any type of education improves the quality of life and wellbeing of older people is nothing other than conventional wisdom (Formosa, 2011).

This article responds to such a lacuna by reporting upon a pretest-posttest study carried out at the University of the Third Age (U3A) in Malta which sought to measure the impact of participation in older adult learning on the levels of active ageing of new members. The subsequent section of the article delineates the key boundaries of active ageing, older adult learning, and how they interface with each other. It is followed by a brief note on the research design of the study which is warranted for reliability and validity purposes. The fourth and fifth sections present the results of the study and its analytical implications, before a concluding part notes the salient implications of this research study and recommendations for further research.

ACTIVE AGEING AND OLDER ADULT LEARNING

The notion of "active ageing" can be traced to the 1960s when the consensus amongst gerontologists was that ageing successfully in later life hinged on the maintenance of activity patterns and values typical of middle age. An oft-cited definition of active ageing is

> the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age. Active ageing applies to both individuals and population groups […]. The word 'active' refers to continuing participation in social, economic, cultural, spiritual and civic affairs, not just the ability to be physically active or to participate in the labour force. (World Health Organization, 2002, p. 12)

Whilst initially the World Health Organization's (WHO) (2002) policy framework hinged active ageing upon three pillars – namely, health, participation and security – subsequent years witnessed the addition of "lifelong learning" as a fourth pillar (International Longevity Centre Brazil, 2015). The rationale was that "lifelong learning is important

not only to employability but also to the reinforcement of well-being […][;] it equips us to stay healthy, and remain relevant and engaged in society" (International Longevity Centre Brazil, 2015, p. 48). This integration of "lifelong learning" into the active ageing discourse also resulted from the rising number of studies uncovering positive correlations between (i) longer periods of compulsory education and better health/income levels, (ii) participation in adult education and self-esteem, confidence, social participation, and physical activity levels, and (iii) enrolment in older adult learning and higher self-reported cognitive performance, health, and levels of activity (Narushima et al., 2018).

The WHO's discourse is far from ideal and has been criticised from various fronts, most notably for its western geographical and gender biases, neglecting certain sectors of the older population such as people with disabilities and non-heterosexual people, and for expecting older adults to maintain the same levels of activity as they did in middle age since this is tantamount to denying the onset of old age (Formosa, 2020). Indeed, contemporary times witnessed the emergence of an active ageing discourse where "being active" implied the continued engagement in any social, economic, cultural or civic activity at the level of one's capacity in later life. Yet the WHO's framework remains extremely beneficial to the ongoing advocacy work in favour of the human rights of older people. It also served to transcend the traditional conceptualisations of later life away from the constricted realms of health-oriented policy and towards the "mainstream of economic, social and cultural debate" (Salter & Salter, 2018, p. 1069). In Walker's words,

> the WHO policy added further weight to the case for a refocusing of active aging away from employment and toward a consideration of all of the different factors that contribute to well-being […]. [I]t emphasized the critical importance of a life-course perspective […][;] to prevent some of the negative consequences associated with later life, it is essential to influence individual behavior and its policy context at earlier stages of the life course. (Walker, 2009, p. 84)

Turning our attention to older adult learning, this occurs when older adults, "individually and in association with others, engage in direct encounter and then purposefully reflect upon, validate, transform, give personal meaning to and seek to integrate their ways of knowing" (Mercken, 2010, p. 9). Statistical research on the participation rates of older people in learning activities remains elusive. However, a review of the available literature elicited three key findings: a lower percentage of older learners compared to younger peers, a sharp decline of participation as people reached their seventh decade, and that typical learners are middle-class women (Formosa & Findsen, 2016b). A key debate in older adult learning is concerned not with "whether we can or cannot teach or retrain an older adult" but "to what end?" and "why?" Primarily, late-life learning was commended for assisting adults to adjust to the negative transformations that accompany "old age", such as decreasing health, the retirement transition, reduced income, death of a spouse, and changing social and civic obligations (Formosa, 2019a). Glendenning and Battersby (1990), and later Formosa (2010, 2012), posited a more radical agenda and bestowed

late-life learning with the responsibility of empowering older people with the necessary advocacy skills that are needed to mitigate against the exclusionary forces brought on by neo-liberalism and capitalism. In reaction, Percy (1990, p. 237) posited a humanistic rationale whereby learning was perceived as a "personal quest" that prioritises "process" over "content", and where the role of an educator "is to facilitate the process of learning for the learner" rather than "persuade him [sic] to social action or to be dissatisfied if a certain political awareness is not achieved". Others advocated the possibility of "transcendental" learning for older adults to reflect on their lives and repair relationships, and hence, understand their role in the world and attitudes towards death (Russell, 2008).

One finds a range of literature focusing on that interface between older adult learning and active ageing. Two of the most prominent researchers in this field, Gillian Boulton-Lewis and Maureen Tam, have long decreed how continued learning benefits active ageing (e.g. Boulton-Lewis et al., 2006; Boulton-Lewis & Tam, 2012; Tam, 2013, 2014). Their studies refer to a myriad of primary and secondary research to highlight the existing positive relationship between physical, emotional, and social wellbeing on the one hand, and late-life learning on the other. In separate studies, they concluded:

> Active ageing, in its simplest terms, is a strategy to maximize the quality of life and well-being of elders […]. Elder Academies wield the greatest potential for realizing the goal of achieving active ageing through elder learning. (Tam, 2013, p. 257)

> [E]ngagement in learning […] keeps older people involved in enjoying and living life fully through building self-confidence and coping strategies, maintaining cognitive functioning and knowledge, managing their health, keeping up with technological developments, maintaining social relationships, and encouraging wisdom. (Boulton-Lewis & Buys, 2015, p. 764)

Other research trails take us to the specific long-ranging impact of participation in non-formal learning on the levels of active ageing of older men (Formosa et al., 2014; Fragoso et al., 2014; Tambaum et al., 2019) and older women (Formosa, 2005; Wilińska, 2016). Whilst one cannot dispute the capacity of learning initiatives to lead towards improved levels of physical, emotional and social capital – all of which are key catalysts and determinants for active ageing in later life –, it is problematic that research studies that use an operationalised tool to measure and quantify the impact of learning on active ageing remain lacking. One reason underlying this misfortune is that the WHO provided little practical guidance regarding the definition or measurement of each active ageing pillar and instead encouraged nations to utilise the framework to identify and address the needs of their ageing population within the context of their own unique cultures and values. Truly, the quasi-experimental investigations conducted by Fernández-Ballesteros and colleagues (2012), which found that late-life learning improved learners' cognitive performance, health and levels of social activity, and emotional balance on one hand, and reduced negative self-perceptions on ageing and group stereotypes on the other, were

promising developments. However, these studies utilised generic assessment tools measuring a range of welfare and cultural stereotype indicators (e.g. Watson et al., 1988) rather than applying an operationalised tool that measures "active ageing" as such. Elsewhere, Arpino and Solé Auró (2019) used, highly arbitrarily, three variables from the *Survey of Health, Ageing and Retirement in Europe* (Börsch-Supan et al., 2015) – social participation, paid work, and grandchild care – to measure active ageing when several studies have warned against the usage of composite indicators since such an approach disguises poor performance in parts of the system due to the aggregations involved (Ravallion, 2010). Therefore, a key lacuna of many research designs included the confounding of the meanings of active ageing and wellbeing. This lapse emerged clearly in Boulton-Lewis and Buys's (2015, p. 764) research conclusions when they stated that "the purpose of the research described in this paper was to explore, from the perspectives of older people, *active learning that might enhance* wellbeing" (italics added). Such confounding of active ageing and wellbeing is not unique in the field of gerontology. Indeed, confounding successful and productive ageing with quality of life, or reducing it to either one of its components of wellbeing or life satisfaction, is also common. This study's efforts to resolve such a confounding challenge is presented in the forthcoming section.

METHODS

The aim of the study was to investigate the impact of participation in third age learning on levels of active ageing. Objectives were threefold: (i) to assess the change on levels of active ageing following participation in an older adult learning programme; (ii) to identify differences in changes to levels of active ageing according to age, gender, educational attainment, and attendance turnout; and (iii) to locate those domains of active ageing that benefit most following participation in a late-life learning programme. This study had its genesis in the Centre for Third Age Education (2013–2017) project founded by the Tempus Programme of the European Union in which the U3A in Malta was one of 17 partners. Permission to participate in this project, thereby carrying out this study, was obtained from the University of Malta and its University Research Ethics Board, under whose auspices lies the Maltese U3A. The study opted for a quasi-experimental research enterprise that included a one-group pretest-posttest design to compare groups or/and to measure the change that took place following an intervention, and included four key stages. The *first* stage consisted of locating an appropriate late-life learning programme in which the pretest-posttest study could be carried out. It was decided to embed the study in the University of the Third Age (U3A) in Malta. The U3A was founded in Toulouse in 1973 and can be defined as

> socio-cultural centres where senior citizens [sic] may acquire new knowledge of significant issues, or validate the knowledge which they already possess, in an agreeable milieu and in accordance with easy and acceptable methods, with the objective of preserving their vitality and participating in the life of the community. (Midwinter, 1984, p. 18)

Instrumentation

The *second* stage concerned locating a suitable instrument to measure active ageing. There exist four assessment scales of active ageing: the Active Ageing Index (AAI) (Zaidi, 2015), the University of Jyvaskyla Active Ageing Scale (UJACAS) (Rantanen et al., 2019), the Active Aging Scale for Thai Adults (AAS-T) (Thanakwang et al., 2014), the WHO (2002) model of active ageing, and the Australian Active Ageing (Triple A) study (Buys & Miller, 2012). While the AAI was precluded due to its fallacious assumption that "an increase in the indicator results from an improvement in the elders' conditions, rather than a deterioration of the conditions in the rest of the population" (Amado et al., 2016, p. 209), the AAS-T was also dropped as some of its factors are exceedingly specific to the Thai cultural fabric. The WHO definition was also rejected on the basis that the research found that the emergent data was not found to fit the resulting statistical model (Bélanger et al., 2017; Fernández-Ballesteros et al., 2013). At the same time, the attempt to quantify active ageing in the Australian Active Ageing (Triple A) study, despite being

Table 1
The UJACAS 17-item scale on active ageing

Scale abbreviation	Full scale item
Crafting	I have done crafting, DIY or other pastimes requiring manual skills.
Artistic pursuits	I have drawn, sung or played a musical instrument, written or practiced some other artistic pursuit.
Social events	I have taken part in various events or activities to do with studying or with clubs or associations.
Nature	I have gone outside and enjoyed the nature.
Physical exercise	I have practiced keeping physically fit.
Cognitive training	I have made an effort to exercise my mind or memory.
Using technology	I have used a computer or a pad.
Helping others	I have helped or supported people close to me or other people.
Maintain social relations	I have done things to maintain my social relationships.
Meet new people	I have taken actions to make new acquaintances.
Promote own matters	I have taken responsibility for furthering matters relating to my own life.
Societal activity	I have taken responsibility for promoting societal or public matters.
Make days interesting	I have done things to make my days more interesting or delightful.
Make home cosy	I have improved or maintained the cosiness of my home.
Appearance	I have taken care of my external appearance.
Economic balance	I have ensured that my financial affairs are in order.
Spirituality	I have acted to further matters according to my faith or worldview.

From *University of Jyvaskyla Active Ageing Scale UJACAS*, by Gerontology Research Center, n.d. (https://www.gerec.fi/en/research/activeageing/active-ageing-agnes-study/active-ageing-scale-ujacas/).

both comprehensive and rigorous, still needs to be validated for different national contexts. Ultimately, this study opted for the UJACAS, which consists of a 17-item scale, whereby each item consists of a standard 5-pont Likert dis(agreement) scale. A key factor underlying this decision was that the UJACAS expounded active ageing as a quantifiable entry, by validating its scores against other indicators of activity and wellbeing by an occupational therapist, and also by checking for any possible problems regarding reliability issues (Rantanen et al., 2019) (Table 1).

In comparison to other empirical scales for active ageing, the strengths of the UJACAS are the definition of active aging at the level of the individual that was used as the foundation for its development, the novelty of developing a scale for assessing active aging as a quantifiable construct, the item response analyses, and the participant involvement (Rantanen et al., 2019).

Sample

The *third* stage involved the sampling procedure and the collection of data. Since Malta is a bilingual nation and U3A members are literate in both the English and Maltese languages (Formosa, 2016), the plan was for the UJACAS English version to be distributed to all *new members* of the University of the Third Age at the start and end of the first academic semester, in October 2018 (T1) and June 2019 (T2) respectively. During the piloting phase, which took place at the end of September 2018, it turned out that whilst respondents were confused by the linguistic nuances discerning the first three columns of the original UJACAS – namely, "will to act", "ability to act", and "possibility to act" – they had no problems with understanding and completing the final column titled "frequency of doing". A decision was thus taken to collect data only on the latter item, thus inquiring about the respondents' levels of engagement in the 17-scale events during the past four weeks. As in the original UJACAS, respondents had an option of five answers: "very much", "quite a lot", "to some extent", "only a little", and "not at all" (Ratanen et al., 2019). Table 2 compares the respondents across their demographic characteristics and attendance at the U3A.

Whilst 73% of new U3A members were women, the remaining 27% were men. The respondents' age was also not evenly distributed, with a relatively high percentage of people aged in the 60–64 age bracket (56.9%). The mean and median age stood at 67.1 and 65 years respectively. The majority of new members (70.8%) had attained a secondary level of education, although a significant percentage of 26.3% reported that they attended educational classes at the post-secondary level. As regards attendance during the October 2018–June 2019 period, the majority of respondents (59.1%) attended more than 75% of the learning sessions. While rank-biserial correlation coefficient tests found no significant association between either gender and age (0.048, $p = 0.221$) or between gender and educational attainment (0.103, $p = 131$), Kendall's rank correlation coefficient uncovered a significant and negative "moderate" association between age and educational attainment (- 0.673, $p = 0.0321$).

Table 2
Demographic data of participating U3A members at T1 and T2 (N=137)

Demographic data	Category	Number	Per cent
Gender	Male	37	27
	Female	100	73
Age (years)	60-64	78	56.9
	65-69	39	28.5
	70-74	18	13.2
	75-79	1	0.7
	80-84	1	0.7
Highest educational attainment	Primary education	4	2.9
	Secondary education	97	70.8
	Tertiary education	36	26.3
Attendance (percentage)	1 - 25	7	5.1
	26 - 50	10	7.3
	51 - 75	39	28.5
	76 - 100	81	59.1

Procedure

The *final* stage consisted of the procedural analysis of data. The data was analysed using the Statistical Package for Social Scientists (Version 27). Reflecting the study's aim and objectives, the null and research (alternative) hypothesis were as follows:

Null Hypothesis 1:
There is no statistically significant difference between pre-test and post-test score results.
Alternative Hypothesis 1:
There is a statistically significant difference between pre-test and post-test score results.

Null Hypothesis 2:
There is no relationship between gender and changes in the scores of active ageing.
Alternative Hypothesis 2:
There is a relationship between gender and changes in the scores of active ageing.

Null Hypothesis 3:
There is no relationship between age and changes in the scores of active ageing.
Alternative Hypothesis 3:
There is a relationship between age and changes in the scores of active ageing.

Null Hypothesis 4:
There is no relationship between educational attainment and changes in the scores of active ageing.

Alternative Hypothesis 4:
There is a relationship between educational attainment and changes in the scores of active ageing.

Null Hypothesis 5:
There is no relationship between turnout in attendance and changes in the scores of active ageing.
Alternative Hypothesis 5:
There is a relationship between turnout in attendance and changes in the scores of active ageing.

Null Hypothesis 6:
Turnout in attendance impacted each specific form of active ageing in an equal measure.
Alternative Hypothesis 6:
Turnout in attendance impacted each specific form of active ageing in different measures.

The data analysis procedure included 5 independent and 17 dependent variables. The former consisted of age, gender, educational level, and the number of lectures attended over a nine-month period, and the latter entailed each of the 17 items on the UJACAS scale. As there is no official record of attendance, as per the U3A's ethos of "learning as an end-in-itself", this variable was conditional upon self-reported statements. Prior to the comparing of variables, tests were conducted to determine whether the distribution of data was normal. While descriptive statistics were used to define the independent demographic data, the rank-biserial correlation coefficient test was used to examine whether there was any significant association between gender, age, and educational attainment. Subsequently, the Kendall's rank correlation coefficient examined any significant association between age and educational attainment. While the Wilcoxon signed-rank test was utilised to compare the mean UJACAS scores between T1 and T2, the effect size (Cohen's d) was calculated to indicate the standardised difference in active ageing between time points (Cohen, 1992). The study also conducted analyses to compare mean UJACAS scores against gender (rank-biserial test), age (Kendall test), educational attainment (Kendall test), and attendance (Kendall test).

RESULTS

The targeted population consisted of 167 first-time members at the U3A. Each member was forwarded two copies of the questionnaire that included an identical index number on each copy, and asked to complete one copy during October 2018 (pre-test stage) and another copy in June 2019 (post-test stage). 150 questionnaires were collected at the pre-test stage, of which two were excluded due to incomplete data, leaving a total of 148 completed surveys. One hundred and thirty-seven questionnaires were collected at the post-test stage, with none exhibiting incomplete data. The shortfall in completed forms required that the 11 missing questionnaires, located from the matching index numbers, were to be discarded. This left a total of 137 matched questionnaires for data analysis (82% response rate, margin of error: 3.56%). Prior to the comparison of variables, tests were conducted to determine

whether the data sets were normally distributed. In this respect, both the Kolmogorov-Smirnov and Shapiro-Wilk tests concluded that the data test was not normally distributed ($p = 0.004 / < 0.001$), and thus required that the data analysis makes use of non-parametric tests. This result was an expected result since Likert scale data are never normally distributed in that values are bound either on the left- and or right-hand side (Khamis, 2008).

Pre-test analysis

The internal consistency (Cronbach's alpha) of the UJACAS scale at T1 and T2 was found to be "good" (0.879) and "excellent" (0.922) respectively. Table 3 compares the mean scores obtained by comparing the respondents' scores in the UJACAS scale at T1 and T2 through the Wilcoxon signed rank test.

Table 3
Mean, median, and standard deviations of UJACAS scores at T1 and T2

Scales	T1 (*N* = 137)			T2 (*N* = 137)			t-test scores (p-value) T1 vs. T2
	Mean	Median	SD	Mean	Median	SD	
Crafting	2.48	3	± 0.79	3.08	4	± 1.15	3.482
Artistic pursuits	2.48	2	± 0.68	3.12	3	± 1.11	3.290
Social events	2.71	3	± 0.86	3.79	4	± 1.01	7.484
Nature	2.77	3	± 0.96	3.73	4	± 0.96	4.380
Physical exercise	2.78	3	± 0.99	3.76	4	± 0.99	6.888
Cognitive training	2.78	3	± 1.01	3.88	4	± 1.01	7.720
Technology	2.59	2	± 0.95	3.60	4	± 1.01	7.001
Helping others	2.58	2	± 1.08	3.63	4	± 1.05	7.142
Maintain soc. relations	2.48	2	± 1.08	3.57	3	± 1.21	7.588
Meet new people	2.81	3	± 0.97	3.73	4	± 0.96	7.199
Promote own matters	2.93	3	± 0.87	3.35	4	± 1.06	7.512
Societal activity	2.79	3	± 0.87	4.05	4	± 1.25	7.825
Make days interesting	2.66	3	± 0.87	3.37	4	± 0.88	4.310
Make home cosy	2.67	3	± 0.97	3.54	4	± 1.31	4.381
Appearance	2.48	2	± 1.00	3.61	4	± 1.04	4.565
Economic balance	2.54	2	± 1.02	3.43	4	± 1.02	4.394
Spirituality	2.62	2	± 1.07	3.43	4	± 1.08	4.294

The effect size for the difference in the UJACAS post-test scores was 0.748, hence close to the Cohen (1988) convention for a strong effect ($d = 0.8$). Data analysis also found a significant and positive improvement in the *overall* scores between the two timeframes ($t = 7.700$, $p < 0.001$). As a result, Null Hypothesis 1 was rejected in favour of the alternative hypothesis that there is a systematic significant difference between pre-test and post-test score results.

Analysing each item on the scale, one finds that while the strongest relationships were recorded for "societal activity", "maintain social relationships", "attending social events", "helping others", "meet new people", "cognitive training" and "using technology" – in that order.

As regards the second hypothesis, the rank-biserial correlation coefficient test found a weak, albeit significant, association between gender and score improvements in the levels of active ageing (0.112, p = 0.029) (Table 4). Hence, Null Hypothesis 2 was rejected and Alternative Hypothesis 2 was affirmed. A scatter diagram of both variables found that women tend to hold higher score improvements than men (Figure 1).

Table 4

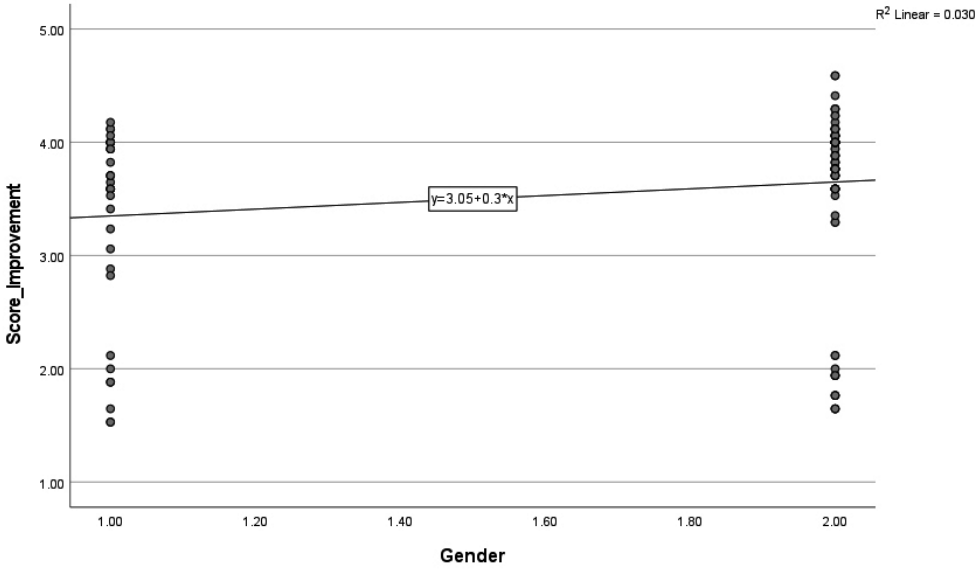
Bivariate correlation between gender and changes in the scores of active ageing (Rank-Biserial)

		Score improvement	Gender
Score improvement	Pearson Correlation	1.000	.112*
	Sig. (2-tailed)	.	.029
	N	137	137
Gender	Pearson Correlation	.112*	1.000
	Sig. (2-tailed)	.029	.
	N	137	137

*. Correlation is significant at the 0.05 level (2-tailed).

Figure 1

Scatter diagram for gender (1=Men, 2=Women) and changes in the scores of active ageing



As regards the third hypothesis, the Kendall's coefficient of rank correlation found a weak, albeit significant, relationship (0.177, p = 0.014) between age and score improvements in the indicators of active ageing (Table 5). Hence, Null Hypothesis 3 was rejected in favour of Alternative Hypothesis 3. A scatter diagram of both variables found that younger members tend to hold higher score improvements than older ones (Figure 2).

Table 5

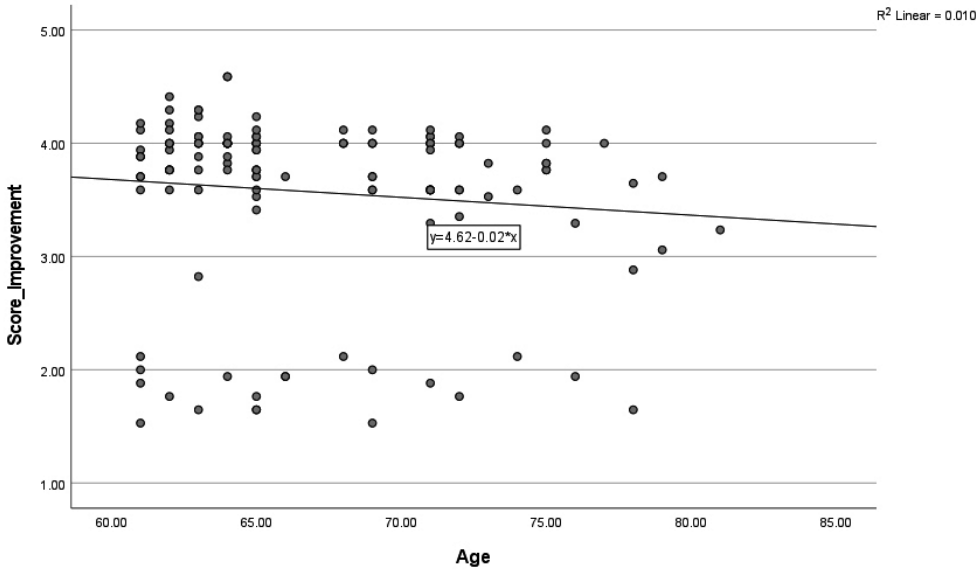
Bivariate correlation between age and changes in the scores of active ageing (Kendall's tau b)

		Score improvement	Age
Score improvement	Correlation Coefficient	1.000	.177*
	Sig. (2-tailed)	.	.014
	N	137	137
Age	Correlation Coefficient	.177*	1.000
	Sig. (2-tailed)	.014	.
	N	137	137

*. Correlation is significant at the 0.05 level (2-tailed).

Figure 2

Scatter diagram for age (years) and changes in the scores of active ageing



As regards the fourth hypothesis, the Kendall's coefficient of rank correlation found a statistically significant and strong relationship (0.801, p = 021) between educational

attainment and score improvements in the levels of active ageing (Table 6). Hence, Null Hypothesis 4 was rejected in favour of Alternative Hypothesis 4, in that a relationship was found between educational attainment and changes in the scores of active ageing.

Table 6
Bivariate correlation between educational attainment and changes in the scores of active ageing (Kendall's tau b)

		Score improvement	Educational attainment
Score improvement	Correlation Coefficient	1.000	.801*
	Sig. (2-tailed)	.	.021
	N	137	137
Educational attainment	Correlation Coefficient	.801*	1.000
	Sig. (2-tailed)	.021	.
	N	137	137

*. Correlation is significant at the 0.05 level (2-tailed).

As regards the fifth hypothesis, the Kendall's coefficient of rank correlation found a statistically strong and significant relationship (0.825, $p < 0.001$) between turnout in attendance and score improvements in the levels of active ageing (Table 7). Null Hypothesis 5 was rejected in favour of Alternative Hypothesis 5, which anticipated a statistically significant relationship between turnout in attendance and changes in the scores of active ageing.

Table 7
Bivariate correlation between attendance turnout and changes in the scores of active ageing (Kendall's tau b)

		Score improvement	Turn out in attendance
Score improvement	Correlation Coefficient	1.000	.825*
	Sig. (2-tailed)	.	.000
	N	137	137
Attendance turnout	Correlation Coefficient	.825*	1.000
	Sig. (2-tailed)	.000	.
	N	137	137

*. Correlation is significant at the 0.05 level (2-tailed).

The final null hypothesis anticipated that there is no statistically significant relationship between turnout in attendance and changes in the different scores of active ageing. However, Kendall's coefficient of rank correlation found strong, moderate and weak

statistically significant relationships between turnout in attendance and scores of active ageing (Table 8). Null Hypothesis 6 was rejected in favour of Alternative Hypothesis 6, as attendance at the U3A had a different impact on the various indicators of active ageing.

Table 8

Multivariate correlations between attendance turnout and scores of active ageing (Kendall's tau b)

	Active Ageing variables						
		Crafting	Artistic pursuits	Social events	Nature	Exercise	Cognitive training
Attendance	Correlation Coefficient	0.627**	0.011	0.509**	0.197**	0.204**	0.550**
	Sig. (2-tailed)	< 0.001	0.886	0.005	0.009	0.006	0.008
		Technology	Helping others	Maintain relations	Meet new people	Promote own matters	Societal activity
	Correlation Coefficient	.182*	.754**	.781**	.718**	.384**	.819**
	Sig. (2-tailed)	.015	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
		Make days interesting	Make home cosy	Appearance	Economic balance	Spirituality	
	Correlation Coefficient	.710**	.309**	.275**	.271**	.397**	
	Sig. (2-tailed)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

As Table 8 attests, "strong" relationships were uncovered between turnout in attendance and "societal activity" (0.819, $p < 0.001$), "maintain social relations" (0.781, $p < 0.001$), "helping others" (0.754, $p < 0.001$), "meet new people" (0.718, $p < 0.001$), and "make days interesting" (0.710, $p < 0.001$) in the respective order.

DISCUSSION

Despite the inclusionary methods professed by the Maltese U3A when targeting potential members, the majority of members were aged in the 60–64 age bracket, women, and holding a secondary education certificate. Such statistics were anticipated since participation surveys have long found U3A members to be young-old middle-class women (Formosa, 2019f). Since the only admission requirement for U3A membership in Malta is the passing of one's 60th birthday, it is to be expected that many new members will be in

their early years of retirement which at the time of research stood at 63 in Malta. At the same time, given that in Malta only about 10% of women aged 55 or over are in formal employment (National Statistics Office, 2020), many women are able to join the U3A once they reach their 60th birthday. Moreover, it has been noted that the increased presence of women learners at U3As is due to the feminisation of ageing and the increased motivation of older women, especially wives who have never been in paid employment, to enrol in learning programmes and leisure organisations to make up for the time spent as domestic workers (Midwinter, 1996). However, Formosa (2019e) questioned this rationale and argued that one must look at other possible explanations, such as gendered trends in association affiliation in later life and older men's negative perceptions of community education. In his view, the reason underlying such low participation for older men was succinctly pinned down by Gorard's (2010) critique of discourses about barriers to learning, when noting that adult men "are not put off by barriers, but by the lack of interest in something that seems alien and imposed by others" (p. 357). Indeed, it has long been recorded that past experience in education is a key determinant of continued interest and participation in late-life learning (Findsen & Formosa, 2016a). As Formosa argued, this should not come as a surprise

> considering the term 'university' in its title. Working class elders are generally apprehensive to join an organization with such a 'heavy' class baggage. Moreover, the liberal-arts curriculum of U3As is perceived as alien by working-class elders who tend to experience 'at-risk-of-poverty' lifestyles. (Formosa, 2007, p. 203)

The fact that data analysis recorded no association either between gender and age or between gender and educational attainment demonstrated a statistically acceptable mix of data. Moreover, the negative "moderate" association between age and educational attainment reflected the fact that young-old people are always found to be better educated than older people due to consistent rises in the compulsory schooling age and improvements in national educational systems during the past half a century (Formosa & Galea, 2020).

A holistic analysis of the results leads to four key inferences. First, one can presume that the weak, albeit significant, associations between age and gender on the one hand, and score improvements in the levels of active ageing on the other, were due to two key factors. On the one hand, younger older people have higher levels of cultural, financial, and physical capital than older people (Gilleard & Higgs, 2020). Consequently, they have better opportunities and resources to be able to follow-up on the recommendations proposed by the U3A facilitators which can range from improving one's nutritional intake, joining organisations, taking up new hobbies such as photography or visiting museums, reading more books, to travelling. On the other hand, older women tend to have stronger ties both inside and outside the family as they generally hold durable relationships with sisters and cousins but also with sisters-in-law and are acquainted with many women in the community through their membership in voluntary associations. This goes some

way in explaining the higher scores of older women since friends correlate positively to participation in leisure activities. Orsega-Smith and colleagues (2007) found that having active friends or being encouraged by at least one person were the most influential stimuli to participate in activities, so that "if an older adult is exposed to a leisure activity and participates with supportive friends, he/she will be more committed participating in that activity than someone who has no friends with whom to do those activities" (Toepoel, 2013, p. 359).

Secondly, and most central to the study, the significant difference between pre-test and post-test score results confirmed that participation in late-life learning opportunities does lead to improved levels of active ageing. There are unmistakable health benefits from participating and attending late-life learning programmes, benefits that can be split into physical and mental wellbeing. The U3As' unique blend of learning and social activities places an unorthodox emphasis on autonomy and participation, thus countering the "decline and loss paradigm" commonly associated with increasing chronological age. Participation in U3As provides older learners with a renewed focus in their personal lives, which strengthens their mental wellbeing by bolstering their sense of purpose, self-confidence, and self-worth. This is especially valuable to older people who have not yet come to terms with retirement, are still experiencing a sense of bereavement and social alienation following the loss of a working day's structure and lifelong colleagues. Indeed, a study on the relationship between emotional wellbeing and participation in the São Paulo U3A in Brazil concluded that "the students [sic] who had been longer on the program run by the institute studied, exhibited higher levels of subjective and psychological well-being [...] where the satisfaction and benefits gained [from learning] extend into other areas of life" (Ordonez et al., 2011, p. 224).

Third, the fact that the strongest relationships were recorded between attendance turnout on the one hand, and "societal activity", "maintain social relationships", "attending social events", "helping others", and "meet new people" on the other, demonstrated that late-life learning is a resilient source of social capital in later life. In line with the argument above that highlighted the general positive relationship between networking and active ageing, U3As have much potential in permeating members with improved levels of social capital and may arise as an arena of social cohesion by providing mutual support in times of life crisis or difficult life transitions such as in the case of bereavement, sickness or moving house (Kimberley et al., 2016). Older adult learning leads participants to maintain social relationships, attend social events, assist others and receive support, whilst making new friends. As was reported in the United Kingdom, because

> most U3A activities take place during the day and on weekdays, participants reflected that it provided a good replacement for the previous work time […] [and] joining the U3A was a planned positive step in retirement offering the opportunity to meet new people who were different from those in the workplace (Third Age Trust, 2018, p. 13).

Indeed, U3As hold a strategic role in mitigating against loneliness and isolation, as many members offer continuous support and presence to each other on a daily basis (Maćkowicz & Wnęk-Gozdek, 2019). The arising sense of social cohesion is particularly evident when one realises that the U3A movement is an important part of the lifelong education system, a key segment of building a learning and intergenerational society, one of the basic public services enjoyed by civil society, and a channel towards active citizenship in later life (Percy, 2019). One learner at the Maltese U3A expressed it thus:

> Before I joined the U3A I used to spend whole days indoors. The weekends were the worst. Having no one to spend one's free time with was very depressing. Here I met many old acquaintances of mine, some of whom were with me at school, whilst also making new friends. I enjoy meeting them because we all have similar backgrounds, and comparable interests and opinions. Sometimes we plan Sunday morning visits to Valletta or afternoon walks. I still spend some days alone but never the whole weekend now. (Older man U3A learner, as cited in Formosa, 2019e, p. 89)

It is thus not surprising that most research in educational gerontology reports that the majority of older people claimed that their motivation to enroll in U3As stemmed from their quest to "make up for lost opportunities" and to "meet people of similar interests" (Formosa, 2019d).

Finally, the strong positive relationship between educational attainment and scores of active ageing contributes further evidence to what Lamb and Brady (2005) called the "education begets education phenomenon", which "suggests that people who presumably have had positive early experiences with education are motivated to seek more of the same" (p. 209). This result corresponds to the findings of Keaney and Oskala's (2007) survey which concluded that engagement with the arts declines noticeably after the age of 65 not due to increasing age but due to limiting disabilities or illnesses, a low income, living alone, having low levels of educational attainment, and being of lower socioeconomic status. They thus argued that "education appears to be one of the strongest predictors of arts engagement, with increasingly high rates of attendance and participation amongst older adults with higher educational qualifications" (Keaney and Oskala, 2007, p. 345). Similarly, Newman and colleagues' (2013) qualitative study on the responses of older people to contemporary visual art also concluded that participation is influenced by the participants' levels of cultural capital which, in turn, is affected by their life course experiences – especially levels of educational attainment.

CONCLUSION

This study clearly revealed that participation in older adult learning has a positive impact on the participants' levels of active ageing. While the results found no association between either age or gender and active ageing, a relationship was found between active

ageing and educational attainment and attendance turnout. This implies that older people with higher-than-average levels of educational attainment and those who attend classes more frequently will experience higher levels of active ageing than others. At the same time, when seeking to locate those domains of active ageing that benefit most following participation in a late-life learning programme, this study found that the highest improvements were registered with respect to "societal activity" and "maintain social relations", thus demonstrating the unmistakable role of older adult learning in improving and strengthening social capital in later life. This study therefore joins other qualitative research (Boulton-Lewis & Buys, 2015; Tam, 2013) in attributing higher levels of active ageing following participation in late-life learning and pressuring policy makers and institutions to widen the provision of lifelong learning programmes for older people. This is also important since older adult learning has proved itself to be a possible mitigation to the social isolation, cognitive impairment, and age discrimination that people tend to experience in later life as such programmes provide older adults with the possibility of strengthening their life and vocational skills, maintaining and extending social networking, and enhancing their feelings of being a vital part of society.

Finally, some words of caution due to the study's limitations. The study is a quantitative study conducted at a specific time in a Southern European context so that the results may not be wholly generalisable to other countries with diverse cultural conditions. Further comparative research is required to ascertain the global value of the results and to determine whether the positive impact of older adult learning on active ageing is stronger or weaker in other cultural and geographical contexts. At the same time, it should be noted that members at the U3A in Malta reflect international participation trends in U3As and do not generally have any significant physical or mobility limitations, and tend to be women, heterosexual and living in urban localities (Formosa, 2021). Hence, the results in this paper attest only to a specific typology of older people, the middle-class heterosexual able-bodied and cognitively healthy types. Yet, the circumstances surrounding later life are more complex and one needs to question why many older adults – such as older men, those living in rural areas, older people with disabilities, ethnic minorities – still do not participate in late-life learning. One thus wonders whether a truly stratified sample of older people would beget different results than the ones reported herein. One hopes that future quantitative studies on that interface between older adult learning and active ageing will be carried out to iron out these possible nuances.

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