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Delving into psychosocial beliefs about lifelong learning: A comparison across educational levels

ABSTRACT

Low-educated adults do not often engage in lifelong learning. The current study examines whether and how psychosocial beliefs about lifelong learning differ between adults with different levels of educational attainment. The Theory of Planned Behaviour, which focuses on three specific psychosocial beliefs (related to Perceived Behavioural Control, Perceived Social Norms, and Attitudes) is used as a theoretical framework. In total, 563 adults completed our survey. ANOVA-analyses were used to study between-groups differences. The results demonstrated that low- and medium-educated adults' experiences with psychosocial barriers are quite similar, except for power of control, since medium-educated adults experience more control over learning skills needed to participate. High-educated adults experience statistically significant more social pressure to engage in lifelong learning, especially from their work-related referents. In addition, high-educated adults experience statistically significant more control over their participation, specifically when it comes to control over skills necessary to participate in learning. Low- and medium-educated adults do show positive attitudes towards learning, but high-educated adults' attitudes are statistically significant more positive. Follow-up, qualitative studies could provide in-depth insight into these determinants. Additional understanding of the three psychosocial barriers could help educational institutions and policy makers to appropriately attract and support adult learners.

Keywords: lifelong learning; psychosocial beliefs; social norms; perceived behavioural control; attitudes

No potential competing interest is reported by the authors.

INTRODUCTION

Engaging in lifelong learning is important. Research has repeatedly demonstrated the benefits of participating in lifelong learning activities (Schuller & Desjardins, 2010). Although low-educated adults could be the ones benefiting most (Manninen & Meriläinen, 2011; de Greef et al., 2015), they are often the ones that are not participating (Desjardins, 2015).

Research on barriers to participation for low-educated adults is scarce and there are some shortcomings in the existing literature. For example, a lot of studies only focus on employed adults, hereby reducing participation barriers to situational and institutional constraints, and overlooking psychosocial barriers (Kyndt et al., 2013). Although low-educated adults are more at risk for experiencing situational and institutional barriers than higher educated adults (Desjardins & Rubenson, 2009), there is some evidence that suggests that low-educated adults may also perceive more psychosocial barriers (such as negative attitudes towards learning or low self-confidence) due to negative prior learning experiences (Illeris, 2006). However, in general, not much research has been carried out on psychosocial barriers of low-educated adults. This may be explained by the fact that institutions and educators may consider this type of barriers as beyond their control (Goto & Martin, 2009). They may believe they have little impact on it, and the individuals themselves need to resolve it (Osam et al., 2017). From an economic perspective, this may lead to it being less attractive to study.

In this paper, we want to study whether and how three specific psychosocial beliefs (i.e., Perceived Social Norms, Perceived Behavioural Control, and Attitudes) regarding participation in lifelong learning differ between low-, medium- and high-educated adults.

These three psychosocial beliefs are key elements in the framework of the Theory of Planned Behaviour (TPB) by Fishbein & Ajzen (2010).

Psychosocial beliefs

Psychosocial barriers to learning are defined as individually held beliefs, values, attitudes, or perceptions that hinder participation in organised learning activities which are situated within a specific social context (Darkenwald & Merriam, 1982; Goto & Martin, 2009). This way, psychosocial “beliefs” may operate as psychosocial barriers. Research on psychosocial barriers to learning is scarce and research differentiating between low-, medium- and high-educated adults' psychosocial barriers to learning is even more scarce. However, evidence suggests that low-educated adults may face more psychosocial barriers than higher educated adults (e.g., negative attitudes towards learning, negative reputation of learning in personal networks, or low self-confidence, see e.g., Illeris, 2006; Nicaise and Lavrijsen, 2017; Pennacchia et al., 2018). Moreover, most of the research on psychosocial barriers focuses on attitudes as a learning constraint while for

example social forces that may enhance these attitudes are studied less (Blair et al., 1995; Porras-Hernández & Salinas-Amescua, 2012).

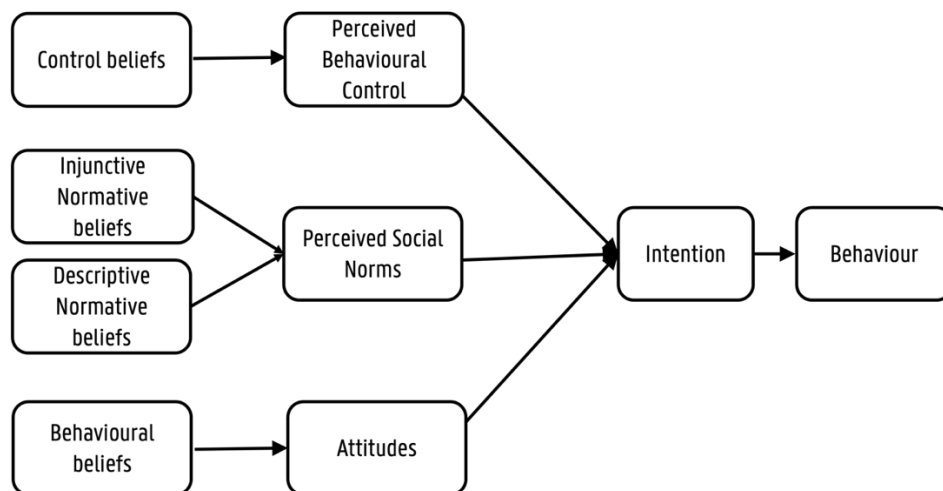
Theory of Planned Behaviour

The TPB has frequently been used in behavioural sciences to study specific behaviour. Boeren (2016) states that regarding the psychological component of (non-)participation in lifelong learning, Fishbein and Ajzen have carried out significant and influential work.

The TPB argues that the proximal determinant of one's behaviour is the intention to engage in that particular behaviour (Fishbein & Ajzen, 2010). In turn, this intention can be predicted by three key factors: Perceived Behavioural Control, Perceived Social Norms, and Attitudes. These three key factors are respectively determined by Control Beliefs, Normative Beliefs, and Behavioural Beliefs (see Fig. 1). How much Perceived Behavioural Control, Perceived Social Norms, and Attitudes contribute to the prediction of intention varies from person to person, group to group, and behaviour to behaviour.

Figure 1

Theory of Planned Behaviour (Fishbein & Ajzen, 2010)



In the past, as Boeren (2016) accurately describes it, the TPB has been successfully used to predict intention to participate in adult education (Sanders et al., 2011). In this respect, the theory's predictive validity regarding participation in lifelong learning has been established and estimations have been made of the relative importance of Perceived Behavioural Control, Perceived Social Norms, and Attitudes. Besides the fact that this type of research is limited, the theory itself is often applied in a rather restricted way. More particularly, if they are included in research, often only reflective indicators (or "direct" measures) of Perceived Behavioural Control, Perceived Social Norms, and Attitudes are used. For example, related to Perceived Social

Norms, a reflective indicator is: "People who are important to me believe I should participate in training", while, when assessing normative beliefs, it can be determined whose opinion is more important, whether these people participate themselves, whether you want to behave like these people etc. To comprehend the variables that serve as the foundation for these three constructs, behavioural, normative and control beliefs should also be assessed. To predict intention to participate, it is easier to only use the reflective indicators of Perceived Behavioural Control, Perceived Social Norms, and Attitudes. However, when the aim is to understand the factors that provide the basis of Perceived Behavioural Control, Perceived Social Norms, and Attitudes, which is the case in this study, the respective beliefs behind the reflective indicators should be assessed.

Concludingly, because all three TPB-predictors fit within the conceptualization of psychosocial barriers by Darkenwald and Merriam (1982), the TPB is very suitable to analyse psychosocial barriers.

Perceived Social Norms

Perceived Social Norms (Fishbein & Ajzen, 2010) or "subjective norms" refers to the social pressure to perform or not to perform a specific behaviour. These can be conceptualised as strict rules, general guidelines, or empirical regularities. It refers to what is acceptable behaviour in a particular group or society in general. Social norms can place limits on your own behaviour and interests. The patterns of behaviour people notice in their social environment, can guide their own behaviour. The stronger the perceived social pressure, the more likely that an intention to perform the specific behaviour will be formed.

In the past, Perceived Social Norms were rather narrowly defined as the desires or expectations from important others to perform a specific behaviour. Now, it is acknowledged that not only the expectations from others but also the behaviour others are exhibiting themselves may lead to perceived social pressure. Consequently, there are two forms of Perceived Social Norms: injunctive and descriptive norms. The former refers to beliefs about what should or ought to be done in relation to a specific behaviour, whereas the latter refers to beliefs about whether or not others are engaging in the behaviour. When studying injunctive social norms, one should include a normative belief component and a motivation to comply with this belief (Fishbein & Ajzen, 2010). As it is not only important to question how important one believes the opinion of someone else is, but also to include how strongly one wants to comply with this opinion. When studying descriptive social norms, one should include a descriptive belief but also an identification component (Fishbein & Ajzen, 2010). In this way, not only the behaviour of others is questioned but also how strongly the participant wants to be like the other, being it their partner, friend, co-worker, etc. For example, it is possible that someone notices their family member performing a given behaviour. However, if this person does not really want to be like this family member, the family member's behaviour will not put social pressure on the person to also perform the behaviour.

Specifically, when looking at adult education participation research, it has been argued before that comparing yourself to a reference group may play a role in forming attitudes towards lifelong learning (Cross, 1981; Darkenwald & Merriam, 1982; Isaac, 2011). Blair et al. (1995) consider social disapproval of adult education from the social or cultural environment as the most important sociocultural barrier to learning. Family members may ridicule the adult for participating in adult education if they themselves have not participated (Isaac, 2011).

However, empirical research on this topic is lacking. No matter how important the social (dis)approval or social norms of the reference group may be in deciding to participate in lifelong learning, still adults' social context is often minimalised in adult education participation research (Blair et al., 1995; Porras-Hernández & Salinas-Amescua, 2012). It is likely that low-educated adults' referents also show low participation rates, thereby increasing the chances of them receiving disapproval from others when they want to participate.

Perceived Behavioural Control

Perceived Behavioural control is conceptualised as “the extent to which people believe that they are capable of performing a given behaviour, that they have control over its performance” (Fishbein & Ajzen, 2010, p.154). If a person believes not to have control over performing a given behaviour, he may not form a behavioural intention to perform it, regardless of his potentially positive attitudes or strong social pressure to do it. Again, the greater the Perceived Behavioural Control, the stronger the intention to perform the behaviour. Perceived Behavioural Control can be assessed by specifying a behaviour and possible barriers or by directly asking about control over performing the behaviour. A person's Perceived Behavioural Control will be greater, if they believe they possess the necessary resources and do not face particular obstacles. The theory behind Perceived Behavioural Control is very similar to that of 'self-efficacy', or a person's belief in his or her own capacities (Bandura, 1997; Fishbein & Ajzen, 2010).

Self-efficacy already appears to be a strong predictor of learning intentions (Renkema, 2006). Adults with successful prior learning experiences will have higher levels of self-efficacy and as a result be more likely to participate in adult learning (Boeren, 2016). This may be one of the possible explanations for the unequal participation of low-and high-educated adults in lifelong learning.

However, the conceptualisation of Perceived Behavioural Control by Fishbein and Ajzen with its two components of Control beliefs and Power of control is different from that of self-efficacy. Control beliefs refer to facilitating or hindering factors (for example 'having financial resources would facilitate the behaviour') while Power of Control refers to whether one will face or have this facilitating or hindering factor (for example 'How likely is it that you will have these financial resources in the next 12 months?'). If you do not

have control over a specific 'object' but also do not believe it would facilitate the behaviour, this will not be an influential factor in deciding to perform the behaviour.

Sanders et al. (2011) demonstrated the TPB's predictive validity and the importance of Perceived Behavioural Control in formulating an intention to participate in lifelong learning. Still, the specific determinants of Perceived Behavioural Control and how these may differ between low-, medium-, and high-educated adults remain unclear despite arguments that adults with low levels of education or who did not have successful education experiences may be less likely to participate than adults with higher educational levels because they lack readiness to learn in both knowledge and skills (Boeren, 2016; Desjardins, 2010).

Attitudes

According to Fishbein and Ajzen (2010) Attitudes are defined as a tendency to respond with some degree of (un)favourableness to a psychological object. This psychological object can also be a behaviour. Attitudes contain an evaluative component. Identifying the characteristics of attitudes is a complex process (Blunt & Yang, 2002). When studying Attitudes according to the TPB, one should include a behavioural belief and an outcome evaluation (Fishbein & Ajzen, 2010). For example, one might believe a growing self-esteem would be a highly desirable result of participating in the behaviour, but one might also believe that this is very unlikely to happen. Then, the positive Attitude will not automatically lead to performing the behaviour as the person deems it unlikely to occur.

When psychosocial factors as barriers to lifelong learning are studied, most of the time the focus is on negative Attitudes towards it. These are frequently incorporated into models that attempt to explain participation, such as the Chain-of-Response model of Cross (1981) and the CLLPM theory of Boeren (2011). To study Attitudes, values that are attached to lifelong learning can be explored and the expectations people have about their personal participation (Boeren, 2016). Attitudes are shown to be significantly related to the intention to participate or actual participation (Boeren, 2011).

Research on Attitudes towards adult learning specifically targeting low-educated adults is limited. Beder (1990) found in his research that a dislike for school, low perceptions of need and the perception that participation would entail too much effort are the main dispositional reasons for not participating in adult basic education. Paldanius (2007) discovered that low-educated adults show a lack of interest in education and Fouarge et al. (2013) demonstrate that exam anxiety affects low-educated employees' willingness to participate in training. However, recent research is scarce and the Attitude towards adult learning has often been narrowly defined in previous research, although it is a broad construct. In this research, we study both components of Attitudes by Fishbein and Ajzen (2010), so we get a grasp on what adults believe to be

important or interesting consequences of learning, as well as on what they believe to be likely to happen and what not.

In conclusion, the aim of this paper is to investigate whether and to what extent low-, medium-, and high-educated adults differ from each other in terms of three specific psychosocial beliefs regarding participation in lifelong learning: Perceived Social Norms (injunctive and descriptive norms), Perceived Behavioural Control (control beliefs and power of control), and Attitudes (behavioural belief and outcome evaluation).

METHODOLOGY

In March 2021, we administered a survey on psychosocial beliefs about lifelong learning that included all three TPB-constructs (Perceived Behavioural Control, Perceived Social Norms and Attitudes). The research was approved by the Ethical Committee of the Faculty of Psychology and Educational Sciences of Ghent University (ref. 2020/161). At the beginning of the survey, after explaining the design and intention of the survey, respondents gave a written consent to participate. Next, lifelong learning was defined as a lifelong activity, referring to all forms of learning aimed at acquiring new knowledge, skills, and attitudes either for work-related or personal reasons. In addition, a few examples of lifelong learning were provided, referring to both formal and non-formal learning.

Participants were recruited by 68 graduate students of Educational Studies of [DETAILS WITHHELD FOR ANONIMITY] in 2021. The students who were in charge of collecting the data were paired up in groups of four. In a maximum of two months, each group was asked to recruit 32 people in their networks between the ages of 25 and 65, with 16 of those people needing to be low-educated, eight medium-educated, and eight high-educated. Age and gender-specific instructions for these participants were also presented (see A1 in Appendix). By providing these instructions, we took into account the risk of convenience sampling, which is the overrepresentation of high-educated adults when asking high-educated students to find participants in their own networks. As a result, it was ensured that low-educated persons were oversampled, and a more representative sample was obtained. Students shared the online survey link with possible respondents, but they did not have access to the survey itself.

Participants

A total of 563 adults completed the survey. On average, participants were 42 years old ($SD = 13$ years), with a minimum of 21 and maximum of 67 years. Of this sample, 57% ($n = 321$) was female, 43% ($n = 242$) male (missing gender $n = 3$).

Based on their ISCED-levels, adults were divided into one of three educational groups. In total, 36% of the sample was low-educated (ISCED 0-2, $n = 202$), 23% medium-educated (ISCED 3-4, $n = 130$), and 41% high-educated (ISCED 5-8, $n = 231$).

Table 1

Sample Distribution

	Age Mean	Age Median	Gender (male)
Low	45.2 (12.9)	47.5	51.2%
Medium	43.9 (12.5)	48	46.9%
High	39.0 (12.8)	35	34.1%

The population of high-educated adults was slightly younger compared to the medium- and low-educated adults. A one-way ANOVA showed a statistically significant difference in age between at least two groups ($F(2,560)=14.255, p<.001$). Tukey's HSD Test for multiple comparisons demonstrated that the mean value of age was statistically significant different between low- and high-educated adults ($p<.001$, 95%C.I. = 3.37,9.15), between medium- and high-educated adults ($p=.001$, 95%C.I.= 1.66,8.23), but not between low- and medium-educated adults ($p=.629$, 95%C.I.= -2.05,4.68).

Variables

Reflective indicators of behaviour, participation, and intention

The survey contained reflective indicators of the three TPB constructs. These are 'direct' or reflective measures. In total, three reflective measures of Perceived Social Norms (e.g., "Most people who I find important, think I should participate in lifelong learning") were included, four of Perceived Behavioural Control (e.g., "My participation in lifelong learning is up to me"), and six of Attitudes ("Lifelong learning is meaningless - meaningful"). All were measured on a seven-point Likert scale. Cronbach's alpha was respectively .836, .772, and .901, indicating good consistency. Consequently, these items could be averaged into three indicators. Since we earlier argued that investigating beliefs is necessary to better understand the three TPB-constructs, the reflective or direct indicators were only used in this study to conduct correlation analysis with the appropriate beliefs, not to conduct the main analysis. However, when interested in studying the relation with participation (see Chapter 3), it is simpler to use the straightforward and direct reflective indicators.

We asked whether the adults had participated in lifelong learning in the previous 12 months and if they intended to do so in the following 12 months (both measured with a yes or no question). If the adults indicated they had a training intention, a follow-up question asked for the name of the intended learning activity and where it would take place. Adults who indicated having an intention but who were not able to describe this training activity (i.e., their intention was too vague) were not considered as having a training intention ($n=11$). This control measure enhances intention as a predictor of participation, as shown by Fishbein and Ajzen (2010), as we were unable to conduct longitudinal research and confirm whether people actually participated after expressing an intention to do so).

Beliefs

Injunctive normative beliefs. In accordance with the new conceptualisation of Perceived Social Norms, normative beliefs consist of both injunctive normative beliefs and descriptive normative beliefs. Injunctive normative beliefs are a combination of (a) injunctive normative beliefs and (b) motivation to comply. In accordance with the TPB, the first is measured on a unipolar scale (ranging from one to seven) while the latter is measured on a bipolar scale (ranging from minus three to three). For example: (a) "How likely is it that your *partner* wants you to participate in lifelong learning?" (very unlikely (one) – very likely (seven)), (b) "When it comes to lifelong learning, how much do you want to do what your *partner* thinks is important" (not at all (minus three) - very much (three)).

Participants received two questions related to injunctive normative beliefs. These two questions were each applied to five referents: partner, close friends, family members, colleagues, and employer (all if applicable). The referent categories were based on those of Sanders et al. (2011) but we opted for combining parents and children into one category of family members and for adding the employer as an additional referent. In total, there were 10 questions related to injunctive normative beliefs. All ten were statistically significant correlated to the reflective indicator of Perceived Social Norms at $p<.01$.

Descriptive normative beliefs. Descriptive normative beliefs are a combination of (a) descriptive normative beliefs and (b) identification with the referents. Again, the beliefs are measured on a unipolar scale (one to seven) while the identification is measured on a bipolar scale (minus three to three). For example: (a) "To your knowledge, does your *partner* participate in lifelong learning?" (disagree (one) – agree (seven)), (b) "When it comes to lifelong learning, how much do you want to be like your *partne*?" (not at all (minus three) – very much (three)). Participants received two questions related to descriptive normative beliefs, again regarding the same five referents. In sum, there were 10 questions and each of them is statistically significant related to the reflective indicator at $p<.01$, so all questions were retained.

Control beliefs. To measure Perceived Behavioural Control, we questioned (a) control beliefs and (b) power of control. For example: (a) "Having *financial resources* would facilitate my participation in lifelong learning" (disagree - agree) and (b) "How likely is it that you will have these *financial resources* in the next 12 months?" (very unlikely - very likely). Again, control belief was measured on a unipolar scale from one to seven and power of control on a bipolar scale from minus three to three.

Both questions were applied to four control factors: financial resources, learning skills, free time, and flexibility of the employer. These four factors were based on or selected from the survey of the Adult Education Survey (AES) 2016 conducted by Eurostat and the Programme for the International Assessment of Adult Competencies (PIAAC) 2011 survey conducted by the OECD. Only determinants that one could have control over, and this amount of control may vary in time (e.g., because of a new job and less working hours, you might have more control over your free time) were retained.

In summary, respondents received eight questions to measure Perceived Behavioural Control. But only for financial resources, learning skills and flexibility of the employer both the control belief and the power of control statistically significant correlated to the reflective indicator of Perceived Behavioural Control at the $p < .01$ level. As a consequence, 'free time' as a control belief was not retained.

Behavioural beliefs. Behavioural beliefs are the result of (a) behavioural belief strength and (b) outcome evaluation. For example: (a) "How likely is it that participating in lifelong learning would result in *meeting new people*?" (very unlikely - very likely) and (b) "How desirable would *meeting new people* be?" (very undesirable - very desirable). The belief strengths ranged from one to seven while the outcome evaluations ranged from minus three to three.

The scale was constructed based on relevant literature (Beder, 1990; Blunt & Yang, 2002; Cross, 1981; Fouarge et al., 2013; Illeris, 2006; Paldanius, 2007). Original survey items were adapted and reformulated as a behavioural belief, for instance, frustrations because learning at later age is difficult (Beder, 1990); and feeling better about myself (Blunt & Yang 2002). Additionally, research findings (from qualitative and quantitative studies) were formulated as behavioural belief, for instance, feeling competent (Schuller & Desjardins, 2010), feeling successful (sense of achievement in Manninen & Meriläinen, 2011), and self-confidence under pressure (Fouarge et al., 2013).

In total, respondents received 23 questions consisting of a question on belief strength and a question on outcome evaluation. Only 17 behavioural beliefs were retained as six beliefs (either the belief strength or outcome evaluation or both) did not correlate ($p < .01$) with the reflective indicator of Attitudes.

Overall, constructs such as Perceived Behavioural Control, Perceived Social Norms and Attitudes are not easy to measure, conceptualise or operationalise. By using likert scales, we chose to quantify qualitative data. This should be kept in mind when interpreting the results.

Data analysis

Our research question was whether and how Perceived Social Norms, Perceived Behavioural Control, and Attitudes regarding participation in lifelong learning differed between low-, medium- and high-educated adults. We analyse this by using the beliefs behind the respective constructs, which we described in detail above.

As more than two groups are compared, we used one-way analysis of variance (ANOVA) to compare mean group scores of low-, medium-, and high-educated adults and Tukey post-hoc tests to identify statistically significant differences ($p < .05$) between groups. Welch's ANOVA and Games Howell post-hoc tests were used when the assumption of homogeneity of variance was violated.

RESULTS

Training intention and participation

Descriptives show that respectively 31%, 31%, and 68% of the low-, medium-, and high-educated adults participated in formal or non-formal learning during the last 12 months. There is a statistically significant difference between groups, $X^2(2,563) = 74.347$, $p < .001$. Further, respectively 24%, 26%, and 59% of low-, medium-, and high-educated adults express the intention to participate in formal or non-formal training during the next 12 months. Again, there is a statistically significant difference between groups, $X^2(2,563) = 67.466$, $p < .001$. Post hoc tests revealed statistically significant differences in participation and intention rates between low-and high-educated adults and medium-and high-educated adults but not between low-and medium-educated adults. Both the participation and intention rates of low-and medium-educated adults are very similar, while high-educated adults' participation and intention rates are more than twice as high.

Injunctive Social Norms

The classic one-way ANOVA test assumes equal variance for all groups. However, a Test of Homogeneity of Variances demonstrated that this assumption is violated for almost all normative injunctive beliefs (except for beliefs related to the partner). Therefore, we use Welch's ANOVA to compare the three (low-medium-high) independent groups' normative beliefs related to their friends, family members, colleagues, and employer. The Welch's test shows that the normative beliefs are statistically significant different between groups (see Table

2 for p-values). A Classic ANOVA was used to compare the normative beliefs related to the partner and the motivation to comply with the referent's beliefs. The results show that there is a statistically significant between-groups difference (see Table 2 for p-values).

Next, we conducted a Post Hoc test to analyse the differences between groups. Tukey Post Hoc tests were used when the assumption of homogeneity was not violated, nonparametric post hoc Games-Howell test was used when this assumption was violated. The results are shown in Table 2.

When looking at the table, we see that there is no statistically significant difference in normative belief or motivation to comply with this belief between low- and medium-educated adults. However, between low-and high-educated and between medium-and high-educated adults we notice statistically significant differences with $p < .05$ for all five referents. The mean results show that, when analysing normative beliefs, low- and medium-educated adults believe that all referents have slightly negative to rather neutral views on their participation in lifelong learning, while high-educated adults indicate that all their referents have positive beliefs related to their participation, meaning that they believe their referents would like them to participate. High-educated adults are especially under the impression that their employer wants them to participate in lifelong learning. However, when studying the motivation to comply with these beliefs, comparisons are even more striking. We clearly see that, related to 'friends', family members', colleagues' and employer's beliefs, there is a low motivation of low- and medium-educated adults to comply as the mean results are negative. This is not the case for high-educated adults, who do feel (although rather moderate) an urge to comply with the beliefs of their referents when it comes to participation in lifelong learning. Low- and medium-educated adults express the lowest motivation to comply with their colleagues' beliefs, while they have a rather neutral position against their partner's belief.

Consequently, high-educated adults experience more expectations from their referents when it comes to lifelong learning, and in addition they also experience a higher urge to comply with these expectations. They perceive more social pressure from all of the referents compared to low- and medium-educated adults.

Descriptive Social Norms

First, we analyse descriptive normative beliefs. A Welch's ANOVA was calculated for all referents except for family members. We notice statistically significant between-groups differences for all referents. Again, there are no differences between low-and medium-educated adults. Differences between low-and high- and medium-and high-educated adults are statistically significant for all referents. High-educated adults notice their referents are participating more in lifelong learning than low-and medium-educated adults do. High-educated adults especially see their work-related referents participating in learning, but also their own

partner.

When looking at how strongly the adults identify with their referents when it comes to lifelong learning, we see there are statistically significant between-groups differences for all referents except for family members. There are no statistically significant differences between low- and medium-educated adults for any of the referents, but also not between low- and high-educated adults for their partner or friends. The means show that low- and medium-educated adults do not want to be like their referents when it comes to lifelong learning while high-educated adults are rather neutral or positive when it comes to being like their referents except for their family members. Thus low- and medium-educated adults state they rather not want to be like their referents and, their referents do not participate (much), or they have no idea whether their referents participate (hence going for the middle of the scale when picking four out of seven).

In general, high-educated adults perceive the highest injunctive and descriptive social pressure to participate in lifelong learning, while medium-educated adults perceive the least pressure.

Perceived Behavioural Control

The same analysis was applied to study Perceived Behavioural Control. A Welch' ANOVA was conducted for the control beliefs and a classic one-way ANOVA for the power of control statements.

First, we study control beliefs. There are only statistically significant between-groups differences related to finances and employer flexibility. Related to finances, there is only a statistically significant difference between medium- and high-educated adults. High-educated adults have a stronger belief than medium-educated adults that having sufficient financial resources would facilitate their participation in lifelong learning. Related to employer flexibility control beliefs, high-educated adults have a strong belief that the flexibility of their employer would facilitate their participation.

Next, we study power of control. Classic one-way ANOVA's show that there are statistically significant between-groups differences for both finances, skills, and employer flexibility. Contrary to the results of social norms and the control beliefs described above, we notice a statistically significant difference between low and medium-educated adults related to power of control over finances and skills. This means that low-educated adults believe they will not have the required finances or skills to participate in lifelong learning in the next 12 months while medium- and high-educated adults respectively hold rather neutral or rather positive beliefs. When comparing employer flexibility, only a statistically significant difference between low- and high-educated adults was found. Again, low-educated adults believe they will not receive flexibility from their employer to participate while high-educated adults' have a rather neutral to positive belief.

In conclusion, low-educated adults have slightly positive beliefs regarding finances, skills and employer flexibility as facilitating factors for participation in lifelong learning, but they do not believe they will have it in the next 12 months. Medium-educated adults perceive necessary financial resources and skills just as facilitating as low-educated adults but, contrary to low-educated adults, they do not hold negative beliefs related to possessing the necessary financial resources and skills. For high-educated adults, employer flexibility would definitely facilitate their participation, but it is unsure whether they will receive this flexibility in the following year.

Table 2

Injunctive Normative Beliefs: ANOVA Results (Between Groups), Post Hoc Test Results, and Descriptives

			Partner	Friends	Family Members	Colleagues	Employer
Normative belief	ANOVA		F(2,487)=23.473,p<.00	F*(2,299.780)=23.677,p	F*(2,300.705)=13.165,p<.00	F*(2,266.238)=41.205,p<.001	F*(2,38.953)=237.296,p<.001
			1	<.001	1		
	Means	Low	3.62 (2.05)	3.37 (1.90)	3.53 (1.91)	3.56 (1.91)	4.22(2.11)
		Medium	3.65 (2.02)	3.22 (1.74)	3.49 (1.91)	3.40 (1.86)	3.87 (2.06)
	High	4.85 (1.82)	4.36 (1.69)	4.32 (1.70)	4.95 (1.65)	5.56 (1.57)	
Motivation to comply	ANOVA		F(2,462)=6.554,p=.002	F(2,509)=16.934,p=.002	F(2,510)=4.961,p=.007	F(2,465)=15.577,p<.001	F(2,441)=14.957,p<.001
	Means	Low	.17 (1.82)	-.31 (1.68)	-.29 (1.70)	-.51 (1.70)	-.02 (1.75)
		Medium	.07 (1.85)	-.45 (1.76)	-.37 (1.78)	-.58 (1.80)	-.11 (1.81)
		High	.72 (1.63)	.15 (1.59)	.15 (1.60)	.34 (1.61)	.82 (1.54)

Note. F: Classic One-way ANOVA, F*: Welch's ANOVA; Post Hoc Test: Tukey Post Hoc for ANOVA, Games Howell for Welch's ANOVA; Means: Standard Deviation in brackets; Scores for Normative belief range from 1-7, for Motivation to comply from -3 to 3; L= Low-educated, M=Medium-educated, H=High-educated; Table A2 in appendix includes Post Hoc Test results

Table 3

Descriptive Normative Beliefs: ANOVA Results (Between Groups), Post Hoc Test Results, and Descriptives

			Partner	Friends	Family Members	Colleagues	Employer
Normative belief	ANOVA		F*(2,262.812)=21.048,p<.001	F*(2,283.292)=33.232,p<.001	F(2,301.714)=7.447,p=.001	F*(2,53.479)=254.270,p<.001	F*(2,228.556)=25.992,p<.001
	Means	Low	3.85 (2.31)	3.83 (1.77)	3.92 (1.88)	3.89 (1.87)	4.13 (2.04)
		Medium	4.08 (2.16)	3.83 (1.64)	3.85 (1.56)	3.80 (1.75)	4.26 (1.94)
		High	5.19 (1.93)	4.98 (1.50)	4.46 (1.67)	5.43 (1.52)	5.44 (1.62)
Identification	ANOVA		F(2,451)=4.869,p=.008	F*(2,272.018)=5.729,p=.004	F*(2,276.373)=2.163,p=.117	F(2,458)=19.240,p<.001	F(2,429)=12.391,p<.001
	Means	Low	-.10 (1.83)	-.21 (1.57)	-.36 (1.71)	-.53 (1.58)	-.33 (1.72)
		Medium	-.47 (1.75)	-.52 (1.72)	-.52 (1.64)	-.54 (1.59)	-.63 (1.69)
		High	.17 (1.64)	.11 (1.49)	-.16 (1.45)	.38 (1.54)	.31 (1.58)

Note. F: Classic One-way ANOVA, F*: Welch's ANOVA; Post Hoc Test: Tukey Post Hoc for ANOVA, Games Howell for Welch's ANOVA; Means: Standard Deviation in brackets; Scores for Normative belief range from 1-7, for Identification from -3 to 3; L= Low-educated, M=Medium-educated, H=High-educated; Table A3 in appendix includes Post Hoc Test results

Table 4

Perceived Behavioural Control: ANOVA Results (Between Groups), Post Hoc Test Results, and Descriptives

			Finances	Skills	Employer Flexibility
Control belief	ANOVA		F*(2,311.642)=5.430,p=.005	F*(2,318.279)=1.547,p=.215	F*(2,257.547)=3.771,p=.024
	Means	Low	4.41(2.16)	4.60(1.80)	4.77(1.94)
		Medium	4.23(1.82)	4.91(1.46)	4.77(1.78)
		High	4.87(1.92)	4.66(1.69)	5.23(1.69)
Power of control	ANOVA		F(2,512)=17.014,p<.001	F(2,514)=46.765,p<.001	F(2,452)=9.772,p<.001
	Means	Low	-.06(2.04)	-.09(1.81)	-.50(1.96)
		Medium	.50(1.97)	.39(1.65)	-.06(1.93)
		High	1.09(1.83)	1.44(1.41)	.38(1.73)

Note. F: Classic One-way ANOVA, F*: Welch's ANOVA; Post Hoc Test: Tukey Post Hoc for ANOVA, Games Howell for Welch's ANOVA; Means: Standard Deviation in brackets; Scores for Control belief range from 1-7, for Power of Control from -3 to 3; L= Low-educated, M=Medium-educated, H=High-educated; Table A4 in appendix includes Post Hoc Test results

Attitudes

Again, we first conducted a Test of Homogeneity of Variances first. Based on these results we used either a classic one-way ANOVA or a Welch's ANOVA.

First, we study behavioural belief strength. We obtain statistically significant between-group differences for nine out of 17 behavioural items. Again, there are no statistically significant differences between low- and medium-educated adults. There are statistically significant differences between low- and high-educated adults for seven items. High-educated adults believe it is more important than low-educated adults that these consequences take place after participating in lifelong learning (e.g., taking personal development into their own hands or benefiting from positive consequences of participating for their mental health). For six items there is a statistically significant difference between medium- and high-educated adults (e.g., acquiring new knowledge and skills and using new knowledge/skills at work). In general, when a statistically significant between-groups difference was found, high-educated adults rate all the events as more important than lower educated adults.

Next, we analyse the outcome evaluation of these events. Again, there are no differences between low- and medium-educated adults. Differences are statistically significant between low- and high-educated adults for five items, high-educated adults believe it is more likely the outcome will take place (e.g., feeling competent after participating and acquiring new knowledge/skills). When comparing medium- and high-educated adults, five items generate statistically significant differences (e.g., high-educated adults believe a growing self-esteem is a likely consequence of participating while medium-educated adults' evaluation is rather neutral).

No negative evaluations were found, not from low- or medium-educated adults.

Table 5A

Attitudes: ANOVA Results (between groups), Post Hoc Test results, and Descriptives

			Feeling competent	Acquiring new knowledge and skills	Getting to know new people	New job opportunities	Feeling successful for learning new things	Taking personal development into own hands	Feeling better about myself	Improving my life	Using new knowledge and skills at work	Using new knowledge and skills in daily life
Behavioural belief	ANOVA		F*(2,292.262) =17.089, p<.001	F*(2,283.328) =19.711, p<.001	F(2,552)=.223,p=.800	F(2,517)=1.500,p=.224	F*(2,302.481) =5.093, p=.007	F*(2,288.979) =17.966, p<.001	F*(2,307.062)=2.498, p=.084	F*(2,298.341)=.336,p=.715	F*(2,284.246) =12.889 p<.001	F*(2,300.390)=1.087, p=.339
	Means	Low	5.53(1.48)	5.88(1.31)	5.22(1.11)	5.47(1.68)	5.56(1.31)	5.45(1.43)	5.64(1.27)	5.47(1.43)	5.43(1.49)	5.32(1.54)
		Medium	5.57(1.32)	5.96(1.22)	5.23(1.39)	5.32(1.54)	5.72(1.23)	5.42(1.30)	5.59(1.27)	5.33(1.48)	5.50(1.40)	5.33(1.48)
		High	6.17(1.08)	6.47(0.80)	5.31(1.34)	5.19(1.52)	5.93(1.07)	6.04(0.99)	5.85(1.16)	5.44(1.27)	6.03(1.13)	5.50(1.22)
Outcome evaluation	ANOVA		F(2,539)=15.733,p<.001	F*(2,297.089)=10.933,p<.001	F(2,536)=.455,p=.635	F(2,508)=.849,p=.428	F*(2,282.919)=5.474,p=.005	F(2,540)=16.014,p<.001	F*(2,293.630)=3.043,p=.049	F(2,519)=.210,p=.811	F*(2,273.190)=9.680,p<.001	F(2,535)=.238,p=.788
	Means	Low	.97(1.41)	1.56(1.29)	1.16(1.54)	.66(1.81)	1.16(1.46)	1.07(1.49)	1.15(1.48)	.92(1.56)	1.01(1.53)	.88(1.61)
		Medium	.97(1.36)	1.70(1.04)	1.28(1.30)	.63(1.67)	1.19(1.39)	1.18(1.29)	1.14(1.45)	.81(1.49)	1.10(1.52)	.92(1.49)
		High	1.50(1.21)	2.04(0.92)	1.28(1.32)	.45(1.64)	1.52(1.01)	1.60(1.19)	1.43(1.21)	.86(1.39)	1.58(1.23)	.98(1.34)

Note. F: Classic One-way ANOVA, F*: Welch's ANOVA; Post Hoc Test: Tukey Post Hoc for ANOVA, Games Howell for Welch's ANOVA; Means: Standard Deviation in brackets; Scores for Behavioural belief range from 1-7, for Outcome evaluation from -3 to 3; L= Low-educated, M=Medium-educated, H=High-educated; Table ASA in appendix includes Post Hoc Results

Table 5B

Attitudes: ANOVA Results (between groups), Post Hoc Test results, and Descriptives

			Feeling part of a new group	Positive consequences for mental health	Growing self- esteem	Staying active	Feeling useful	Breaking with daily routines	Being proud of myself
Behavioural belief	ANOVA		F*(2,307.875) =.112,p=.894	F*(2,296.782)=5.414,p=. 005	F*(2,301.597)=5. 469,p=.005	F*(2,305.705)=5. 362,p=.005	F*(2,308.287)=2. 580,p=.077	F(2,531)=5.702,p =.004	F(2,541)=1.11 3,p=.329
	Means	Low	4.71(1.58)	5.31(1.54)	5.65(1.29)	5.69(1.30)	5.63(1.29)	4.64(1.57)	5.86(1.20)
		Medium	4.71(1.34)	5.45(1.35)	5.46(1.30)	5.52(1.23)	5.56(1.26)	4.63(1.53)	5.69(1.22)
		High	4.77(1.21)	5.73(1.11)	5.89(1.07)	5.92(1.04)	5.83(1.12)	5.09(1.47)	5.88(1.14)
	ANOVA		F(2,531)=.02 2,p=.978	F(2,526)=2.540,p=.080	F*(2,283.266)=3. 600,p=.029	F(2,531)=1.293,p= .275	F*(2,292.173)=2.1 02,p=.124	F(2,526)=2.756,p =.064	F*(2,288.544)=1.292,p=.27 6
	Means	Low	.67(1.59)	1.02(1.45)	1.18(1.47)	1.37(1.34)	1.24(1.41)	.74(1.40)	1.43(1.34)
		Medium	.70(1.46)	.95(1.45)	.98(1.54)	1.26(1.35)	1.28(1.40)	.65(1.59)	1.35(1/42)
		High	.66(1.44)	1.26(1.24)	1.38(1.11)	1.49(1.17)	1.49(1.15)	1.00(1.37)	1.57(1.13)

Note. F: Classic One-way ANOVA, F*: Welch's ANOVA; Tukey Post Hoc for ANOVA, Games Howell for Welch's ANOVA; Means: Standard Deviation in brackets; Scores for Behavioural belief range from 1-7, for Outcome evaluation from -3 to 3; L= Low-educated, M=Medium-educated, H=High-educated; Table ASB in appendix includes Post Hoc Results

In sum, when looking at the items that statistically significant differ between groups, we see that for low- and medium-educated adults breaking with daily routines is least important while acquiring new knowledge and skills is the most important belief. For high-educated adults acquiring new skills and knowledge is also the most important behavioural belief but feeling part of a new group is the least important one.

In general, high-educated adults perceive the consequences of participating as more important and they hold a stronger belief that the consequences will occur.

DISCUSSION

The aim of this paper was to examine whether and how three psychosocial beliefs (i.e., Perceived Social Norms, Perceived Behavioural Control, and Attitudes) about participation in lifelong learning differ between low-, medium- and high-educated adults. This insight is necessary as low-educated adults show low participation rates in lifelong learning and evidence suggests that low-educated adults may be more at risk of experiencing psychosocial barriers than adults with higher educational levels. Also, psychosocial barriers are often overlooked in adult education participation research.

We used the Theory of Planned Behaviour to analyse which specific determinants of Perceived Social Norms, Perceived Behavioural Control, and Attitudes differ between low-, medium- and high-educated adults with respect to lifelong learning.

First, our results demonstrate that high-educated adults perceive statistically significant more social pressure and control to participate in lifelong learning and also show more positive attitudes towards participation. Second, we were able to illustrate the resemblances between low- and medium-educated adults when it comes to psychosocial beliefs and barriers to lifelong learning.

There are no statistically significant differences in perceived social pressure (not for injunctive nor descriptive social norms) and attitudes between low- and medium-educated adults. As previous research demonstrated that participation rates differ between low- and medium-educated adults (e.g., in Belgium 22 versus 41%, see Van Nieuwenhove and De Wever (2022) using PIAAC data from 2012), we believed this would also be the case regarding their underlying psychosocial beliefs. However, participation rates of low- and medium-educated adults in the present study are not different.

Isaac (2011) argued that family members may ridicule other family members for participating if they themselves have not participated. Our results, however, show that low- (and also medium-) educated adults do not perceive any social pressure: not to participate in lifelong learning and not to mirror the learning behaviour of their social environment. In high-educated adults' lives this social

pressure is clearly more present. Prior research argued that comparing yourself to a reference group may play a role in forming attitudes towards lifelong learning (Cross, 1981; Darkenwald & Merriam, 1982; Isaac, 2011). Our research shows that the groups with the lowest participation rates (low- and medium-educated adults) show the lowest social pressure and report that they do not care as much about the perceptions or behaviour of the different reference groups.

Illeris (2006) and Paldanius (2007) both argue that low-educated adults have more negative Attitudes towards learning than higher educated adults. This was confirmed by our results. High-educated adults perceive the included consequences of participating as more important than lower educated adults and they hold stronger beliefs that the expected consequences will in fact take place.

Contrary to Perceived Social Norms and Attitudes, we did notice differences between low- and medium-educated adults regarding Perceived Behavioural Control. Both groups perceive necessary financial resources and skills as facilitating for participating in lifelong learning. However, medium-educated adults hold stronger beliefs that they will control these financial resources and skills in the next year. High-educated adults show high control beliefs and power of control. This is in line with Boeren (2016) who argued that adults with successful prior learning experiences will display higher levels of self-efficacy and that this may be one of the possible explanations for the unequal participation of low- and high-educated adults. Our results suggest that it might be relevant to include the twofold conceptualisation of Perceived Behavioural Control (not only control beliefs but also power of control) to study the psychosocial differences and the unequal participation of low- and medium-educated adults.

There are a few limitations to this research. First, compared to the number of low- and high-educated adults in this sample, the number of medium-educated adults is smaller. A larger sample of medium-educated adults may be necessary to check the reliability of the results specifically for this group. Additionally, and also related to the participants in our sample, the participants were recruited by university students in their personal networks. This may have an influence on participation, intention rates and psychosocial perspectives of the low- and medium-educated adults in this sample. The low-educated adults who are in the networks of high-educated students may have more positive views related to lifelong learning. This may explain the lack of difference between low- and medium-educated adults' results. Additionally, we observe that the majority of the survey participants are women. This can be explained by the fact that the junior researchers who recruited the participants are students in a dominantly female major. Although we have no reason to expect there would be a gender bias when it comes to psychosocial beliefs, this may potentially have an impact on psychosocial perspectives.

However, neither literature in the field nor other unpublished research have pointed in the direction of this gender difference. Second, to determine the control resources related to Perceived Behavioural Control we used existing literature and existing large-assessment surveys as the basis for our conceptualisation of the construct. However, due to the lack of literature on Perceived Behavioural Control, it could be of value to first organise focus groups to collect salient beliefs related to this construct. The included control beliefs in this paper can be used as a starting point to organise the focus groups. For example, low-educated adults turn out to have less control over their learning skills. Future research could examine the different components of these learning skills. Third, in this sample, participation rates, Perceived Social Norms, Perceived Behavioural Control, and Attitudes (control beliefs) do not differ for low- and medium-educated adults. Previous research has shown that participation rates are different for low- and medium-educated adults (Van Nieuwenhove & De Wever, 2022) but this is not the case in the current study although the same ISCED levels were applied. It is unclear what has caused this difference: specific sample characteristics or possible societal evolutions (e.g., credentialism and grade inflation but also skills mismatch). Future research that focuses on medium-educated adults is needed, both on their participation rates as on their psychosocial beliefs. For instance, future research could examine whether a general decline in participation rates for medium-educated adults can be identified, for example by using the data from the second PIAAC-cycle in 2024. Future qualitative research may also generate interesting and important results, especially research that focuses on low-educated adults. This research may provide more in-depth insight into the rationales regarding participation in general (Desjardins & Rubenson, 2009) but also in the specific social pressure of referents and the specific control beliefs.

Concludingly, our study generates important results as the literature on barriers to learning in general is rather scarce and the literature on psychosocial barriers to learning is even more limited. The Theory of Planned Behaviour has been used before to predict intention to participate in lifelong learning but to our knowledge, there is no research using the Theory of Planned Behaviour to analyse specific determinants of Perceived Social Norms or Perceived Behavioural Control related to lifelong learning. In addition, we provided a comparison between low-, medium-, and high-educated adults' psychosocial beliefs about learning. Our results should be taken into account when particular policies are established to attract low-, but also medium-educated adults. Contrary to what is argued in literature, we believe psychosocial barriers are not completely beyond the control of policy makers or educational institutions (Goto & Martin, 2009; Osam et al., 2017) and insight in psychosocial barriers can still help them to attract or to support adults facing this type of barrier. For example, if low-educated

adults believe they have little control over skills to participate in lifelong learning, it may be important to emphasise the fact that no prior knowledge is required, that anyone can follow the course, that there will be sufficient support, etc. Again, more research is needed to gain insight into the specific determinants.

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A2. Post Hoc Tests

Table A2

Injunctive Normative Beliefs: ANOVA Results (Between Groups), Post Hoc Test Results, and Descriptives

		Partner	Friends	Family Members	Colleagues	Employer	
Normative belief	ANOVA	F(2,487)=23.473,p<.001	F*(2,299.780)=23.677,p<.001	F*(2,300.705)=13.165,p<.001	F*(2,266.238)=41.205,p<.001	F*(2,38.953)=237.296,p<.001	
	Post Hoc Test	L vs M	p=.992	p=.746	p=.976	p=.767	p=.371
		L vs H	p<.001	p<.001	p<.001	p<.001	p<.001
		M vs H	p<.001	p<.001	p<.001	p<.001	p<.001
	Means	Low	3.62 (2.05)	3.37 (1.90)	3.53 (1.91)	3.56 (1.91)	4.22(2.11)
		Medium	3.65 (2.02)	3.22 (1.74)	3.49 (1.91)	3.40 (1.86)	3.87 (2.06)
		High	4.85 (1.82)	4.36 (1.69)	4.32 (1.70)	4.95 (1.65)	5.56 (1.57)
Motivation to comply	ANOVA	F(2,462)=6.554,p=.002	F(2,509)=16.934,p=.002	F(2,510)=4.961,p=.007	F(2,465)=15.577,p<.001	F(2,441)=14.957,p<.001	
	Post Hoc Test	L vs M	p=.895	p=.742	p=.918	p=.934	p=.907
		L vs H	p=.009	p=.020	p=.027	p<.001	p<.001
		M vs H	p=.006	p=.005	p=.020	p<.001	p<.001
	Means	Low	.17 (1.82)	-.31 (1.68)	-.29 (1.70)	-.51 (1.70)	-.02 (1.75)
		Medium	.07 (1.85)	-.45 (1.76)	-.37 (1.78)	-.58 (1.80)	-.11 (1.81)
		High	.72 (1.63)	.15 (1.59)	.15 (1.60)	.34 (1.61)	.82 (1.54)

Table A3

Descriptive Normative Beliefs: ANOVA Results (Between Groups), Post Hoc Test Results, and Descriptives

		Partner	Friends	Family Members	Colleagues	Employer	
Normative belief	ANOVA	F*(2,262.812)=21.048,p<.001	F*(2,283.292)=33.232,p<.001	F(2,301.714)=7.447,p=.001	F*(2,53.479)=254.270,p<.001	F*(2,228.556)=25.992,p<.001	
	Post Hoc Test	L vs M	p=.678	p=.999	p=.950	p=.929	p=.888
		L vs H	p<.001	p<.001	p=.007	p<.001	p<.001
		M vs H	p<.001	p<.001	p=.003	p<.001	p<.001
	Means	Low	3.85 (2.31)	3.83 (1.77)	3.92 (1.88)	3.89 (1.87)	4.13 (2.04)
		Medium	4.08 (2.16)	3.83 (1.64)	3.85 (1.56)	3.80 (1.75)	4.26 (1.94)
		High	5.19 (1.93)	4.98 (1.50)	4.46 (1.67)	5.43 (1.52)	5.44 (1.62)
Identi- fication	ANOVA	F(2,451)=4.869,p=.008	F*(2,272.018)=5.729,p=.004	F*(2,276.373)=2.163,p=.117	F(2,458)=19.240,p<.001	F(2,429)=12.391,p<.001	
	Post Hoc Test	L vs M	p=.204	p=.690	p=.716	p=.999	p=.361
		L vs H	p=.313	p=.112	p=.429	p<.001	p=.001
		M vs H	p=.006	p=.004	p=.119	p<.001	p<.001
	Means	Low	-.10 (1.83)	-.21 (1.57)	-.36 (1.71)	-.53 (1.58)	-.33 (1.72)
		Medium	-.47 (1.75)	-.52 (1.72)	-.52 (1.64)	-.54 (1.59)	-.63 (1.69)
		High	.17 (1.64)	.11 (1.49)	-.16 (1.45)	.38 (1.54)	.31 (1.58)

Table A4

Perceived Behavioural Control: ANOVA Results (Between Groups), Post Hoc Test Results, and Descriptives

		Finances	Skills	Employer Flexibility	
Control belief	ANOVA	F*(2,311.642)=5.430,p=.005	F*(2,318.279)=1.547,p=.215	F*(2,257.547)=3.771,p=.024	
	Post Hoc Test	L vs M	p=.700	p=.235	p=1.00
		L vs H	p=.066	p=.949	p<.001
		M vs H	p=.006	p=.322	p<.001
	Means	Low	4.41(2.16)	4.60(1.80)	4.77(1.94)
		Medium	4.23(1.82)	4.91(1.46)	4.77(1.78)
		High	4.87(1.92)	4.66(1.69)	5.23(1.69)
Power of control	ANOVA	F(2,512)=17.014,p<.001	F(2,514)=46.765,p<.001	F(2,452)=9.772,p<.001	
	Post Hoc Test	L vs M	p=.037	p=.034	p=.156
		L vs H	p<.001	p<.001	p<.001
		M vs H	p=.021	p<.001	p=.120
	Means	Low	-.06(2.04)	-.09(1.81)	-.50(1.96)
		Medium	.50(1.97)	.39(1.65)	-.06(1.93)
		High	1.09(1.83)	1.44(1.41)	.38(1.73)

Table A5A

Attitudes: ANOVA Results (between groups), Post Hoc Test results, and Descriptives

		Feeling competent	Acquiring new knowledge and skills	Getting to know new people	New job opportunities	Feeling successful for learning new things	Taking personal development into own hands	Feeling better about myself	Improving my life	Using new knowledge and skills at work	Using new knowledge and skills in daily life	
Behavioural belief	ANOVA	F*(2,292.262)=17.089, p<.001	F*(2,283.328)=19.711, p<.001	F(2,552)=.223, p=.800	F(2,517)=1.500, p=.224	F*(2,302.481)=5.093, p=.007	F*(2,288.979)=17.966, p<.001	F*(2,307.062)=2.498, p=.084	F*(2,298.341)=.336, p=.715	F*(2,284.246)=12.889, p<.001	F*(2,300.390)=1.087, p=.339	
	Post Hoc Test	L vs M	p=.966	p=.854	p=.999	p=.725	p=.536	p=.978	p=.936	p=.704	p=.916	p=.998
		L vs H	p<.001	p<.001	p=.813	p=.194	p=.005	p<.001	p=.178	p=.975	p<.001	p=.403
		M vs H	p<.001	p<.001	p=.875	p=.750	p=.236	p<.001	p=.137	p=.781	p=.001	p=.527
	Means	Low	5.53(1.48)	5.88(1.31)	5.22(1.11)	5.47(1.68)	5.56(1.31)	5.45(1.43)	5.64(1.27)	5.47(1.43)	5.43(1.49)	5.32(1.54)
		Medium	5.57(1.32)	5.96(1.22)	5.23(1.39)	5.32(1.54)	5.72(1.23)	5.42(1.30)	5.59(1.27)	5.33(1.48)	5.50(1.40)	5.33(1.48)
		High	6.17(1.08)	6.47(0.80)	5.31(1.34)	5.19(1.52)	5.93(1.07)	6.04(0.99)	5.85(1.16)	5.44(1.27)	6.03(1.13)	5.50(1.22)
Outcome evaluation	ANOVA	F(2,539)=15.733, p<.001	F*(2,297.089)=10.933, p<.001	F(2,536)=.455, p=.635	F(2,508)=.849, p=.428	F*(2,282.919)=5.474, p=.005	F(2,540)=16.014, p<.001	F*(2,293.630)=3.043, p=.049	F(2,519)=.210, p=.811	F*(2,273.190)=9.680, p<.001	F(2,535)=.238, p=.788	
	Post Hoc Test	L vs M	p=.999	p=.559	p=.744	p=.986	p=.977	p=.755	p=.997	p=.800	p=.854	p=.977
		L vs H	p<.001	p<.001	p=.654	p=.443	p=.012	p<.001	p=.095	p=.913	p<.001	p=.776
		M vs H	p=.001	p=.007	p=1.00	p=.633	p=.056	p=.013	p=.139	p=.953	p=.012	p=.922
	Means	Low	.97(1.41)	1.56(1.29)	1.16(1.54)	.66(1.81)	1.16(1.46)	1.07(1.49)	1.15(1.48)	.92(1.56)	1.01(1.53)	.88(1.61)
		Medium	.97(1.36)	1.70(1.04)	1.28(1.30)	.63(1.67)	1.19(1.39)	1.18(1.29)	1.14(1.45)	.81(1.49)	1.10(1.52)	.92(1.49)
		High	1.50(1.21)	2.04(0.92)	1.28(1.32)	.45(1.64)	1.52(1.01)	1.60(1.19)	1.43(1.21)	.86(1.39)	1.58(1.23)	.98(1.34)

Table A5B

Attitudes: ANOVA Results (between groups), Post Hoc Test results, and Descriptives

		Feeling part of a new group	Positive consequences for mental health	Growing self- esteem	Staying active	Feeling useful	Breaking with daily routines	Being proud of myself	
Behavioural belief	ANOVA	F*(2,307.875) =.112,p=.894	F*(2,296.782)=5.414,p=. 005	F*(2,301.597)=5. 469,p=.005	F*(2,305.705)=5. 362,p=.005	F*(2,308.287)=2. 580,p=.077	F(2,531)=5.702,p =.004	F(2,541)=1.11 3,p=.329	
	Post Hoc Test	L vs M	p=1.00	p=.688	p=.391	p=.496	p=.876	p=.998	p=.447
		L vs H	p=.921	p=.006	p=.117	p=.102	p=.213	p=.009	p=.974
		M vs H	p=.921	p=.125	p=.005	p=.007	p=.110	p=.021	p=.321
	Means	Low	4.71(1.58)	5.31(1.54)	5.65(1.29)	5.69(1.30)	5.63(1.29)	4.64(1.57)	5.86(1.20)
		Medium	4.71(1.34)	5.45(1.35)	5.46(1.30)	5.52(1.23)	5.56(1.26)	4.63(1.53)	5.69(1.22)
		High	4.77(1.21)	5.73(1.11)	5.89(1.07)	5.92(1.04)	5.83(1.12)	5.09(1.47)	5.88(1.14)
Outcome evaluation	ANOVA	F(2,531)=.02 2,p=.978	F(2,526)=2.540,p=.080	F*(2,283.266)=3. 600,p=.029	F(2,531)=1.293,p= .275	F*(2,292.173)=2.1 02,p=.124	F(2,526)=2.756,p =.064	F*(2,288.544)=1.292,p=.27 6	
	Post Hoc Test	L vs M	p=.986	p=.897	p=.474	p=.720	p=.965	p=.856	p=.870
		L vs H	p=.999	p=.190	p=.287	p=.647	p=.145	p=.177	p=.512
		M vs H	p=.977	p=.112	p=.031	p=.253	p=.362	p=.088	p=.314
	Means	Low	.67(1.59)	1.02(1.45)	1.18(1.47)	1.37(1.34)	1.24(1.41)	.74(1.40)	1.43(1.34)
		Medium	.70(1.46)	.95(1.45)	.98(1.54)	1.26(1.35)	1.28(1.40)	.65(1.59)	1.35(1.42)
		High	.66(1.44)	1.26(1.24)	1.38(1.11)	1.49(1.17)	1.49(1.15)	1.00(1.37)	1.57(1.13)