Cypriot Journal of Educational Sciences

Volume 17, Issue 4, (2022) 1032-1050

www.cjes.eu

A training programme on constructive thinking skills for reducing psychological defeatism and attitude towards intellectual extremism of university students

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Suggested Citation:

Absellatif, M. (2022). A training programme on constructive thinking skills for reducing psychological defeatism and attitude towards intellectual extremism of university students. *Cypriot Journal of Educational Science. 17*(4), 1032-1050. https://doi.org/10.18844/cjes.v17i4.7118

Received from December10, 2021; revised from February 12, 2022; accepted from April 10, 2022.

Abstract

The purpose of the present study is to investigate the effectiveness of a training programme on constructive thinking skills in reducing the psychological defeatism level and attitude towards intellectual extremism among university students and to examine the continuity of its effectiveness after the follow-up period. A quasi-experimental research design with one training and one control group and three measurements (pre, post and follow-up) was used. Twenty students participated in the research with 12 in the experimental group and 8 in the control group. The training programme on constructive thinking skills was applied to the experimental group over a period of 16 sessions. No application was conducted on the control group. The psychological defeatism scale, the attitude towards intellectual extremism scale and the constructive thinking scale were applied to the participants. Data were analysed by Mann–Whitney and Wilcoxon tests. The findings of this research indicated that the training programme on constructive thinking skills has caused a significant decrease in the experimental group's psychological defeatism and attitude towards intellectual extremism levels. Besides, there were no significant differences between the mean scores of the experimental group in the post and follow-up measurements of the psychological defeatism and the attitude towards intellectual extremism a month later. Research findings were discussed within the context of the related literature and some suggestions were provided for researchers and stakeholders.

Keywords: Attitude towards intellectual extremism, constructive thinking skills, psychological defeatism, university students.

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1. Introduction

This section displays briefly the related literature and previous studies concerned with the research variable. In addition, it highlights the research problem. The university stage is one of the most exciting and happiest times of students' life, which is also full of challenges and difficult situations that require specific skills and experience to encounter (Demirtas & Guven, 2017; Sim, 2000; Urben et al., 2015). Young people also live in a rapidly changing world in various life fields; experiencing social, academic and psychological challenges that may hinder achieving their goals and ambitions (Giancola et al., 2001; Seiffge-Krenke, 2000). Thus, they may be more vulnerable to psychological defeatism and intellectual extremism. The university's role is prominent here in building and refining the students' personalities and immunising them psychologically and intellectually.

Psychological defeatism is any intentional behaviour that affects the self or the activities of the self negatively, whereby individuals experiencing misfortune see misfortune as uncontrollable (Callan et al., 2014). It reflects the negative thoughts about an individual's ability to implement goal-directed behaviour that hinders behaviour initiation and participation (Campellone et al., 2016). Psychological defeatism is manifested in the broken will of the self, the weakness of the individual's personality in front of himself and others, his inability to confront problems, aversion to the activities of present and future life, the flashback of the soul to what makes it happy, and the belief in spiritual loss with feelings of inferiority, contempt and self-blame (Azazi & Ali, 2020).

Individuals and groups who suffer from intellectual and cultural conflicts, disruption of values and frustration feel psychological defeatism; this seems complicated when this defeat affects ideas, principles and values (Abdel Samad, 2013). The causes of psychological problems and defeat behaviours as indicated by rational emotive behavioural therapy are not through external events but through beliefs about events, distorted perceptions and irrational beliefs (Petrides et al., 2017). Irrational beliefs generally affect individuals functioning and cause emotional self-defeating patterns. These beliefs are acquired in childhood through social learning and processes that are seen as functional and protective by the individual through self-suggestion and repetition (Kaya et al., 2017).

Psychological defeatism is more dangerous than physical defeatism because it infects the individual with frustration and deficit, despite having qualifications and possibilities of overtaking (Abu Halawa, 2012). Besides, psychological defeatism is more dangerous to individuals and groups than all the weapons invented by man in wars because it leads to intellectual, cultural and spiritual losses, and behaviour of despair, unhappiness and brokenness (Abdel Samad, 2013). The psychologically defeated individual may become intellectually and socially dull, lonely, isolated, self-centred and pessimistic. It may also affect his physical health, thus becoming a broken heart, or as cardiologists call Broken Heart Syndrome (Hasaballah, 2020).

Several studies have focused on investigating the effects of psychological defeatism. Al Akkad and Qaoud's (2001) study reported the positive correlative relationship between irrational thoughts and self-defeating behaviour among male and female adolescents. Wei and Ku (2007) also found that people with a high level of self-defeating patterns tend to have negative beliefs and thoughts about themselves and have a high rate of anxiety and depression. Besides, Ibrahim and Al Shazly's (2020) study results indicated the positive correlation between polarised thinking and psychological defeatism. It is clear from the above that psychological defeatism includes cognitive content represented in negative thoughts of an individual's ability to achieve his goals and ambitions and that psychologically defeated individuals have negative thoughts about themselves and irrational beliefs about reality.

Intellectual extremism is a severe problem facing societies of all religions and beliefs, affecting their social fabric. It negatively affects the human, social and behavioural relationships among all social groups. Some studies indicated that the prevalence of intellectual extremism manifestations among university students ranged between 7.5% and 41.4% (Al Dwekat, 1998), while the study of Hassan and Al Jamali (2003) revealed a prevalence rate of 10.29%–48.5%, and Al Sharjabi's (2016) study demonstrated a prevalence rate of 68.88%. Consequently, various studies asserted the significance of preparing and implementing preventive and curative programmes that limit the spread of intellectual extremism (e.g., Abu Dawaba, 2012; Al Layl & Al Shimmari, 2013; Davydov, 2015). In addition, Wintrobe (2006) interpreted extremism as rational thought and behaviour, and that extremist groups and their members are rational, thinking that they struggle to achieve their goals by searching for the best ways to achieve and how to make the media address their movements and actions and anticipate the results.

The attitude towards intellectual extremism is a response in the personality that expresses rejection and resentment towards what exists in society, as it reflects a group of characteristics of the extremist personality to the approach of a group of extremist methods of behaviour such as intolerance, rigidity, intellectual rigidity and alienation from others (Larton, 2005). Also, it refers to adhering to a tough stance that leads to an individual's isolation in the social environment in which he lives, and extremism may be in the direction of complete acceptance or complete rejection and moderation in the middle (Bolder, 2006). Intellectual extremism is a type of thinking that appears in the form of an intellectual deviation from an individual attitude, which leads to questioning beliefs, visions, interests and goals (Al Moajil, 2016).

Intellectual extremism emerges among young people who suffer from wrong ideas and misperceptions and adopt irrational convictions (Al Masoud, 2015). Al Sayed and Al Khayat's (2018) study indicated the relationship between intellectual extremism, mono-vision and negative mechanical thoughts in a sample of university students. In addition, the study of Al Mohsen and Ahmed (2016) concluded that there is a negative correlation between cognitive flexibility and intellectual extremism among university students. The study of Mustafa and Rashwan (2020) concluded that the dimensions of positive thinking have significant contributions in predicting awareness of the dangers of deviation and intellectual extremism. Besides, the results of Al Otaibi's (2018) study concluded that there is a positive correlation between irrational ideas and the attitude towards intellectual extremism in all its dimensions. The results of some studies have found that intellectual extremism is positively related to irrational thinking and negative thinking, and positive thinking is negatively correlated. Positive thinking and negative thinking are considered poles of constructivist thinking. In this regard, Kephart (2003) explained that the levels of constructivist thinking extend from the maximum pattern of positive thinking (structural) to the maximum pattern of negative thinking (destructive). Consequently, students' well-being has significant implications for success during and beyond university. So, educators need clear evidence of aspects of university life that can contribute to their well-being.

A significant feature that differentiates human beings from other living things is having thinking ability. The way people use their thinking styles influences their feelings, behaviours, views, decisions, problem-solving methods and relationships with others. Therefore, the thinking process and processing of information systems have become an important subject, especially for psychology and education.

Constructive thinking is a concept that allows us to clarify this remarkable skill in dealing with stresses and everyday problems (Demirtas & Guven, 2017; Epstein, 2001; Katz & Epstein, 1991; Urben et al., 2015). Constructive thinking is the ability to think in a way that allows us to solve everyday difficulties with less stress (Katz & Epstein, 1991). It is also defined as an adaptive propensity that is positively associated with adaptation in many areas of life, as well as general well-being (Epstein & Meier, 1989).

Epstein (1998) stated that constructive thinking is the ability of the individual to employ a set of familiar productive and non-productive cognitive ideas that affect his ability to think in a way that contributes to solving his problems with the least amount of tension possible. According to Katz and Epstein (1991), constructivist thinking refers to the ability to think in a way that helps solve daily life problems with the least amount of stress.

In general, constructivist thinking is related to success in daily life, social relationships, behavioural and emotional compatibility, and is negatively correlated with psychological symptoms and self-control problems. Therefore, constructivist thinking is a good predictor of success in performing tasks in different areas of life, such as school, work and social relationships (Shawqi, 2009). Cognitive, emotional, and psychological reactions differ between individuals who have a good level of constructivist thinking compared to those who have a low level of constructivist thinking. Epstein and Katz (1992) showed that those with low constructive thinking are exposed to many negative emotions and suffer from physical and emotional symptoms in their daily life and symptoms related to anxiety, which means that constructivist thinking is positively is an important part of the individual's psychological health.

Constructive thinking involves a set of cognitive ideas that guide an individual's behaviour when facing stressful conditions. It enables the individual to review his thinking to meet the requirements of different situations, which improves his ability to manage his emotions and adapt effectively (Drach-Zahavy & Somech, 2002). Constructivist thinking consists of seven dimensions, and Al Huwaiji (2016) defined them procedurally as follows:

- *Global constructive thinking (GCT):* 'The automatic way of thinking that increases an individual's effectiveness in coping with events'.
- *Behavioural coping (BC):* The automatic way of thinking that increases an individual's effectiveness in coping with events.
- *Emotional coping (EC):* The automatic way of thinking that helps to cope with stressful events effectively without tension or emotion.
- *Personal superstitious thinking (PST):* The degree to which a person believes in one's own set of superstitions, and is associated with pessimism, feelings of vulnerability and depression.
- *Categorical thinking (CT):* The attitude of individuals not to care about subtle differences between things, events and people, and to see the world in terms of black or white.
- *Esoteric thinking (ET):* The extent to which an individual believes in magic and unfamiliar things such as astrology, fortune telling and ghosts.
- *Naive Optimism (NO):* The extent to which an individual unrealistically possesses feelings of optimism and appears to expect positive events to occur without realistic data or logical justifications for this feeling.

Constructive thinking denotes the individual's skill in dealing positively with stressful life situations and thinking in an automatic manner that would reduce the level of stress that the individual experience. Those with good constructivist thinking are flexible and calm in thinking, rational and making good decisions to solve their problems, spontaneous, relying on their experiences in dealing with situations, practical in solving their problems, psychological toughness in facing life and daily stresses, they can adapt to different situations (Demirtaş & Guven, 2017; Ghadampour et al., 2020; Ginting & Joebagio, 2020; Ismail & Al Hussaini, 2021).

Introducing successful coping strategies may help students avoid the destructive consequences of defeatism and intellectual extremism. It is clear from the above that constructive thinking skills contribute to achieving behavioural and emotional compatibility, and that psychological defeatism and intellectual extremism are a set of negative thoughts, indicating the possibility of the contribution of constructivist thinking skills in reducing psychological defeatism and attitude towards intellectual extremism among university students. Moreover, the study of the constructivist thinking skills variable experimentally is one of the new and important variables that has not been studied empirically enough and is appropriate for it in Arab environments to treat psychological, emotional and intellectual problems among university students. Through reviewing the psychological heritage in this field, it is clear that studies are scarce in this field, and there is no study – within the limits of what the researcher has seen – that dealt with the effect of training on constructive thinking skills in reducing psychological defeat and the attitude towards intellectual extremism among university students.

Moreover, a pilot study through interviews with these students was conducted to confirm the existence of the research problem. Results revealed that there are common features between them, which are pessimism and withdrawal from volunteer work and community service activities, reluctance to attend training courses, feelings of frustration and loss of hope regarding some issues concerning the reality of Muslims, loss of purpose and meaning of life, low level of self-motivation and exaggeration in embracing some religious, political and social ideas.

Given the existing theory and empirical literature reviewed above, it is seen that constructive thinking that forms the base of the programme (the dependent variable) of this research is a very effective variable related to mental health in various fields of life. Thus, we suggest that providing a constructive thinking training programme for university students within the compass of a programme will have a positive effect on students. Because it is the first experimental study based on constructive thinking in Saudi Arabia and that stimulates the researchers' and psychological counsellors' attention to constructive thinking strategy this research will have great importance. Hence, this research aims to investigate the effectiveness of a training programme on constructive thinking skills in reducing the psychological defeatism level and attitude towards intellectual extremism among university students and to ensure the continuity of its effectiveness after the follow-up period. In line with this aim, the following hypotheses have been constructed:

Hypothesis 1: There are statistically significant differences between the mean scores of the experimental and control group members in the components of the psychological defeatism scale and the overall degree after applying for the programme, in favour of the post-measurements.

Hypothesis 2: There are no statistically significant differences between the mean scores of the experimental group members in the components of the psychological defeatism scale and the overall degree in the post and follow-up measurements (after a month).

Hypothesis 3: There are statistically significant differences between the mean scores of the experimental and control group members in the components of the attitude towards intellectual extremism scale and the overall degree after applying for the programme, in favour of the post-measurements.

Hypothesis 4: There are no statistically significant differences between the mean scores of the experimental group members in the components of the attitude towards intellectual extremism scale and the overall degree in the post and follow-up measurements (after a month).

2. Method

This section includes an explanation of the procedures used to conduct the experiment and validate the research tools.

2.1. Research model

The quasi-experimental research design was utilised to identify the effectiveness of the training programme based on constructive thinking skills (as an independent variable) in reducing psychological defeatism and attitude towards intellectual extremism (as a dependent variable) after controlling the intervening factors of the two groups that may affect the dependent variable. The 16 sessions of the constructive thinking programme were applied to the experimental group. No application was conducted on the control group. A follow-up test was applied to the experimental and control groups 1 month after the completion of the programme to examine the permanent effect of the programme. The study tools were applied to participants in both experimental and control groups as the pre-test, post-test and follow-up test.

2.2. Study group

The research community consisted of first-level students in the colleges of Wadi Al-Dawasir governorate during the first semester of the academic year 2021/2022. The researcher chose it purposely to teach them during the first semester.

The pilot research sample comprised 188 students in the College of Arts and Sciences (age mean = 19.78, SD = 1.63) to verify the validity and reliability of the research tools. The basic research sample consisted of 175 students from the Colleges of Medical Sciences and Engineering, who were chosen in a simple random way. They were distributed into two groups; the experimental group from the College of Engineering (n = 108) and the control group from the College of Medical Sciences (n = 67). The basic research participants were restricted to male students to exclude the gender impact on the dependent variables. The psychological defeatism scale and the attitude towards intellectual extremism scale were pre-applied to them, as the students' scores on these two scales were arranged in ascending order, and those who got high scores on the two scales were chosen, and they were the ones who fall in the highest quadrant, which represents 75%. From the scores on both scales, the value of which is 90 in each of them, their number was 12 students in engineering and 8 students in medical sciences. Accordingly, students who obtained a score of 90 or more were considered as students with high psychological defeatism and a high attitude towards intellectual extremism, and they were divided into two groups, experimental and control. Moreover, the Mann–Whitney test was conducted on the pre-measurements data to test whether the experimental and control groups were equivalent in terms of age, constructive thinking skills, psychological defeatism and attitude towards intellectual extremism.

2.3. Data collection tools

2.3.1. Constructive thinking scale

The constructive thinking scale was developed by Epstein (1992). The current research utilised the adapted Saudi environment short form, presented by Al Hawiji (2016). The scale consists of 53 items distributed into 7 dimensions. The instructions ask subjects to rate on a 5-point Likert-type scale. Within the current research, the validity and reliability study was conducted on university students by the researcher.

In addition to the well-documented evidence of the scale psychometric properties, the construct validity through exploratory factor analysis with principal axis factoring was examined, where Bartlett's test was 3444.316 with df = 1378 and Kaiser–Meyer–Olkin (KMO) test = 0.814. Based on the factor analysis of a large item pool representing this domain, seven specific factors were identified (GCT, BC, EC, PST, CT, ET and NO). The results revealed that the seven factors have 50.26% of the total variance. Besides, oblique Promax rotation demonstrated that the factor loading of items ranged between 2.938 and 4.941, confirming the verification of the structural validity of the scale.

In this research, the confirmatory factor analysis was conducted on the pilot study participants to examine the construct validity of the adapted version of the scale by the researcher. The result indicated that the hypothesised seven factors model represented an acceptable fit to the data [χ^2 = 3131.08, df = 1,304, χ^2/df = 2.40, comparative fit index (CFI) = 0.963, root mean square of error approximation (RMSEA) = 0.071, Tucker–Lewis index (TLI) = 0.962, goodness of fit index (GFI) = 0.954, and incremental fit index (IFI) = 0.964]. Cronbach's alpha internal consistency coefficient was calculated to define the scale reliability, where the values of the reliability coefficients in the total degree of the scale and dimensions were greater than 0.7. The results of calculating the internal consistency coefficients of the scale showed that there were significant positive correlation coefficients at the level of 0.01 between the degree of each item with the total degree of the dimension to which it belongs, after deleting the degree of the items from the total degree of the dimension.

2.3.2. Psychological defeatism scale

The psychological defeatism scale for university students was developed by the researcher. The scale in its initial form consisted of 24 items distributed into 4 dimensions. The instructions ask subjects to rate on a 5-point Likert-type scale (ranging from a very small degree of agreement to a very large degree of agreement). A high degree indicates a high level of a student's psychological defeatism.

The construct validity through exploratory factor analysis with principal axis factoring was examined, where Bartlett's test was 969.324 with df = 276 and KMO test = 0.848. Based on the factor analysis of a large-item pool representing this domain, four specific factors were identified (psychological debility, self-contempt, spiritual emptiness and self-deficit). The results revealed that the four factors have 62.21% of the total variance. Besides, oblique Promax rotation demonstrated that the factor loading of items ranged between 3.345 and 4.233, confirming the verification of the structural validity of the psychological defeatism scale.

The confirmatory factor analysis was conducted on the pilot study participants to examine the construct validity of the scale. The result indicated that the hypothesised four factors model represented on acceptable fit to the data (χ^2 = 610.72, df = 246, χ^2/df = 2.48, CFI = 0.953, RMSEA = 0.064, TLI = 0.651, GFI = 0.950 and IFI = 0.954). Cronbach's alpha internal consistency coefficient was

calculated to define the scale reliability, where the values of the reliability coefficients in the total degree of the scale and dimensions were greater than 0.7. The results of calculating the internal consistency coefficients of the scale showed that there were significant positive correlation coefficients at the level of 0.01 between the degree of each item with the total degree of the dimension to which it belongs, after deleting the degree of the items from the total degree of the dimension.

2.3.3. The attitude towards intellectual extremism scale

The attitude towards intellectual extremism scale for university students was developed by the researcher. The scale in its initial form consisted of 24 items distributed into 4 dimensions. The instructions ask subjects to rate on a 5-point Likert-type scale (starting from a very small degree of agreement to a very large degree of agreement). A high degree indicates a high level of attitude towards intellectual extremism.

The construct validity through exploratory factor analysis with principal axis factoring was examined, where Bartlett's test was 12.6.221 with df = 276 and KMO test = 0.853. Based on factor analysis of a large-item pool representing this domain, four specific factors were identified (attitude towards religious intellectual extremism, attitude towards political intellectual extremism, attitude towards social intellectual extremism and attitude towards moral intellectual extremism). The results revealed that the four factors have 51.88% of the total variance. Besides, oblique Promax rotation demonstrated that the factor loading of items ranged between 3.547 and 2.479, confirming the verification of the structural validity of the attitude towards intellectual extremism scale.

The confirmatory factor analysis was conducted on the pilot study participants to examine the construct validity of the scale. The result indicated that the hypothesised four factors model represented on acceptable fit to the data (χ^2 = 603.43, df = 246, χ^2/df = 2.453, CFI = 0.973, RMSEA = 0.053, TLI = 0.974, GFI = 0.973 and IFI = 0.977). Cronbach's alpha internal consistency coefficient was calculated to define the scale reliability, where the values of the reliability coefficients in the total degree of the scale and dimensions were greater than 0.7. The results of calculating the internal consistency coefficients of the scale showed that there were significant positive correlation coefficients at the level of 0.01 between the degree of each item with the total degree of the dimension to which it belongs, after deleting the degree of the items from the total degree of the dimension.

2.4. Preparing the constructive thinking training programme

The content of the programme is connected to the participants' characteristics, attitudes and the general problems that may affect their way of thinking and their psychological state. The programme included free content, consisting of situations, activities and life problems that stimulated their thinking away from university courses. The programme has a general objective that seeks to achieve, and behavioural objectives for each session.

2.4.1. *The programme content*

The programme included topics and skills necessary for university students with high psychological defeatism and attitude towards intellectual extremism. They were selected according to a pre-exploratory study carried out by the researcher, where he surveyed the students' opinions about the most prominent life, psychological, social and religious problems that they face and that disturb their thinking and affect them psychologically. Sessions were enhanced with Quranic verses, prophetic

hadiths and authentic stories. The programme included training on the following constructivist thinking skills: global constructive thinking, BC, EC, PST, CT, ET and NO.

The general outlines of the sessions and brief information are provided below:

Session 1: To help participants warm-up the group, explain expectations from the programme and determine goals and identify the work nature and implementation plan.

Session 2: To help participants infer constructive thinking skills from Quranic and Sunnah texts and stories of the righteous predecessors and employ constructive thinking skills in simulated situations.

Session 3: To help participants identify the concept of constructivist thinking, deduce structural thinking skills from examples and provide examples of each skill from reality.

Session 4: To help participants identify the concept of BC, identify the dimensions of positive BC and employ BC skills in challenging situations.

Session 5: To help participants recognise the concept of positive thinking and employ positive thinking skills in stressful situations.

Session 6: To help participants identify the concept of EC, identify the dimensions of positive EC and employ EC skills in difficult situations.

Session 7: To help participants identify positive self-talk skills and employ them practically.

Session 8: To help participants recognise the concept of self-awareness, discover their strengths and weaknesses and to employ strengths in life through situations.

Session 9: To help participants identify the concept of CT, identify the manifestations and risks of CT and employ methods of modifying CT in life situations.

Session 10: To help participants identify the concept of bigotry, identify the forms of bigotry, deduce the dangers of bigotry and employ methods of treating bigotry in life situations.

Session 11: To help participants identify the concept of PST, identify the manifestations of PST, deduce the dangers of PST and employ methods of treating PST in life situations.

Session 12: To help participants identify the concept of ET, identify the manifestations of ET, deduce the dangers of ET and employ methods of treating ET in life situations.

Session 13: To help participants identify the concept of optimism, reduce manifestations of optimism and employ the optimal strategy in stressful situations.

Session 14: To help participants identify the strategy of instilling hope and employ the strategy of instilling hope in difficult situations.

Session 15: To help participants identify ways to overcome failure experiences and employ methods to overcome failure through situations.

Session 16: To help participants identify the concept of moderation, deduce the manifestations of moderation in religious thought and behaviour, recognise the dangers of extremism and extremism and employ moderation in thought.

2.4.2. *Techniques and methods of training in the programme*

Lecture, dialogue and discussion, cooperative learning, brainstorming, think–pair–share, direct and symbolic modelling, role-playing, story, transcendental meditation, mindful work, mindful breathing, hypothetical thinking, refutation, style alternatives and individual and group exercises: What do you do in the following situations?

2.4.3. *Programme time and the number of session*

The programme was distributed over 8 weeks, during which 16 training sessions were held (each session was 60 minutes) per session, with 2 sessions per week, ranging from easy to difficult, in addition to a session for each of the pre-measurement, post-measurement and follow-up measurement.

2.4.4. *Programme evaluation*

A preliminary evaluation of the constructive thinking skills was conducted on the members of the experimental group before the application of the programme, as well as a structural evaluation during the implementation of the programme sessions to follow-up on the progress in the programme, through a form for assessing the objectives of the programme sessions prepared by the researcher, then the final evaluation (after completing the programme) through applying the measure of the effectiveness of experimental procedures. A follow-up measurement was also conducted after a month of constructivist thinking skills on the experimental group members to verify the extent to which the learning effect remained after the training process.

2.4.5. *Programme validity*

To confirm the programme validity, it was presented to a group of professors of psychology and mental health to judge the validity of the training programme procedures, objectives and content. It was found after reviewing the opinions of the arbitrators that the programme is suitable for what it was designed for.

2.5. Applying the post-test

After completing the programme sessions, the researcher applied the constructive thinking scale, psychological defeatism scale and the attitude towards intellectual extremism scale to the experimental and control groups as a post-measurement.

2.6. Data analysis

To analyse the results of the current study, IBM SPSS v.20 programmes was used, and the following statistical methods were used: Mann–Whitney test for independent samples, Wilcoxon test for correlated samples and the equation '*r*' to calculate the effect size.

A split-sample PCA and CFA approach was used to investigate the construct validity of the scales using exploratory and confirmatory factor analysis. The study only included participants with complete data on all scales. The data set was randomly split into two using the random sample of cases function in SPSS and copied to two separate data sets. This function approximates a 50/50 split. Exploratory factor analysis was carried out on sub-sample 1 using SPSS version 26. The appropriateness of running factor analysis was assessed with the Kaiser–Meyer–Oklin measure of sampling adequacy (KMO) ≥ 0.8 and with Bartlett's test of sphericity being significant ($p < 0.05$) (Field, 2013). Factors were extracted using Kaiser's criterion (i.e., eigenvalues greater than 1). Factors were rotated using the direct Oblimin technique to allow factors to correlate. Subsequently, a CFA was carried out on sub-sample two using Amos v.26. CFA was performed on the model suggested by the EFA. The model was tested using

maximum likelihood estimation. Following Kline (2015), the model χ^2, the RMSEA, CFI, TLI, GFI and IFI were reported as goodness-of-fit indicators for all models. Good model fit was indicated by a non-significant model χ^2/df≤3.0, RMSEA ≤ 0.08, TLI ≥0.95, GFI ≥0.95 and CFI ≥0.95 (Hu & Bentler, 1999). The consistency of the indicator variables in measuring the latent variables can be seen from the construct reliability. If the value of construct reliability > 0.7, then it shows that the indicator variable is consistent (Purwanto et al., 2021).

3. Results

This section contains a description of the main findings of the research.

3.1. Results of validating the first hypothesis

'There are statistically significant differences between the mean scores of the experimental and control group members in the components of the psychological programme, in favour of the defeatism scale and the overall degree after applying for the of the post-measurements'. To verify this hypothesis, the Mann–Whitney test was utilised to calculate the significance of differences as indicated in Table 1.

Table 1. Differences between the control and experimental groups in post-measurement of psychological defeatism

Psychological Defeatism scale	Group	*N*	Mean	Std. deviation	Mean of ranks	Sum of ranks	*U*	*Z*	Sig.	Effect size '*r*'*
Psychological debility	Control	8	13.25	0.89	16.5	132	0	3.77	<0.001	0.842
	Experimental	12	6.58	0.90	6.5	78				
Self-contempt	Control	8	12.50	0.76	16.5	132	0	3.77	<0.001	0.842
	Experimental	12	6.50	1.00	6.5	78				
Spiritual emptiness	Control	8	12.63	0.74	16.5	132	0	3.86	<0.001	0.864
	Experimental	12	5.33	0.49	6.5	78				
Self-deficit	Control	8	13.75	0.89	16.5	132	0	3.77	<0.001	0.843
	Experimental	12	6.00	1.04	6.5	78				
Total Score	Control	8	52.13	1.73	16.5	132	0	3.73	<0.001	0.833
	Experimental	12	24.42	1.93	6.5	78				

[a] Mann–Whitney U test: $r = \frac{z}{\sqrt{n_1+n_2}}$, where *r* is the ES estimate for the Mann–Whitney U test, *Z* is the *Z*-score produced by SPSS, n_1 is the number of observations for first group and n_2 is the number of observations for second group on which *Z* is based. The interpretation of ES relied on the benchmarks proposed by Pallant (2016, p. 229). Small, *r* = 0.1; medium, *r* = 0.3; and large, *r* = 0.5.

According to the results presented in Table 1, there are statistically significant differences between the experimental and control groups in the post-measurement of psychological defeatism and its components in favour of the experimental group, indicating that the first hypothesis is valid. The mean ranks of the experimental group are lower than those of the control group, confirming a decrease in psychological defeatism among the experimental group than the control group with a significant

difference. Based on this finding, the constructive thinking skills training programme is seen to have created a positive change in decreasing the psychological defeatism of the experimental group.

3.2. Results of validating the second hypothesis

'There are no statistically significant differences between the mean scores of the experimental group members in the components of the psychological defeatism scale and the overall degree in the post and follow-up measurements (after a month)'. To verify this hypothesis, the Wilcoxon test was utilised to calculate the significance of differences as indicated in Table 2.

Table 2. Differences between the post and follow-up measurements of experimental group in psychological defeatism

Psychological Defeatism scale	Ranks	*N*	Mean of ranks	Sum of ranks	*Z* value	Sig.
Psychological debility	Negative ranks	1	1.5	1.5	0.00	N.S
	Positive ranks	1	1.5	1.5		
	Ties	10				
Self-contempt	Negative ranks	0	0	0	1.00	N.S
	Positive ranks	1	1	1		
	Ties	11				
Spiritual emptiness	Negative ranks	0	0	0	1.73	N.S
	Positive ranks	3	2	6		
	Ties	9				
Self-deficit	Negative ranks	0	0	0	1.00	N.S
	Positive ranks	1	1	1		
	Ties	11				
Total Score	Negative ranks	1	2	2	1.13	N.S
	Positive ranks	3	2.67	8		
	Ties	8				

Table 2 indicates that there are no statistically significant differences between the mean ranks of scores in the experimental group members on the psychological defeatism scale and its components in the post and follow-up measurements (after a month), indicating that the second hypothesis is valid as all (z) values were not statistically significant.

3.3. Results of validating the third hypothesis

'There are statistically significant differences between the mean scores of the experimental and control group members in the components of the attitude towards intellectual extremism scale and the overall degree after applying for the programme in favour of the post-measurements'. To verify this hypothesis, the Mann–Whitney test was utilised to calculate the significance of differences as indicated in Table 3.

Table 3. Differences between control and experimental group in post-measurements of attitude towards intellectual extremism

Attitude towards intellectual extremism	Group	*N*	Mean	Std. deviation	Mean of ranks	Sum of ranks	*U*	*Z*	Sig.	Effect Size '*r*'
ARIE	Control	8	12.38	1.41	16.5	132	0	3.77	<0.001	0.842
	Experimental	12	6.50	0.91	6.5	78				
APIE	Control	8	13.13	0.99	16.5	132	0	3.81	<0.001	0.852
	Experimental	12	6.33	0.78	6.5	78				
ASIE	Control	8	13.00	1.07	16.5	132	0	3.79	<0.001	0.848
	Experimental	12	5.58	0.67	6.5	78				
AMIE	Control	8	13.13	1.13	16.5	132	0	3.77	<0.001	0.844
	Experimental	12	6.00	0.74	6.5	78				
Total score	Control	8	51.63	2.45	16.5	132	0	3.74	<0.001	0.837
	Experimental	12	24.42	1.31	6.5	78				

Table 3 reveals that there are statistically significant differences between the experimental and control groups in the post-measurement of the attitude towards intellectual extremism and its components, in favour of the experimental group, which means that the third hypothesis is valid. The mean ranks of the experimental group are lower than those of the control group, confirming a decrease in attitude towards intellectual extremism among the experimental group than the control group with a significant difference.

3.4. Results of validating the fourth hypothesis

'There are statistically significant differences between the mean scores of the experimental and control group members in the components of the attitude towards intellectual extremism scale and the overall degree after applying for the programme in favour of the post-measurements'. To verify this hypothesis, the Wilcoxon test was utilised to calculate the significance of differences as indicated in the Table 4.

Table 4. Differences between post and follow-up measurements of experimental group in attitude towards intellectual extremism

Attitude towards intellectual extremism scale	Ranks	*N*	Mean of ranks	Sum of ranks	*Z* value	Sig.
ARIE	Negative ranks	1	2	2	0.59	N.S
	Positive ranks	2	2	4		
	Ties	9				
APIE	Negative ranks	3	2.83	8.5	1.30	N.S
	Positive ranks	1	1.5	1.5		
	Ties	8				
ASIE	Negative ranks	1	2	2	0.58	N.S
	Positive ranks	2	2	4		
	Ties	9				
AMIE	Negative ranks	2	3.75	7.5	0.00	N.S

Attitude towards intellectual extremism scale	Ranks	*N*	Mean of ranks	Sum of ranks	*Z* value	Sig.
	Positive ranks	3	2.5	7.5		
	Ties	7				
	Negative ranks	4	5	20		
Total score	Positive ranks	4	4	16	0.30	N.S
	Ties	4				

Table 4 indicates that there are no statistically significant differences between the mean ranks of scores in the experimental group members on the attitude towards extremism scale and its components in the post and follow-up measurements (after a month), indicating that the fourth hypothesis is valid as all (*z*) values were not statistically significant.

4. Discussion

This section explains and evaluates the research findings, showing how it relates to the literature review and previous related studies.

In this research, the effectiveness of a training programme based on constructive thinking skills in reducing the psychological defeatism and intellectual extremism of university students was examined. The overall results of this research supported the assumptions presented. The findings indicated that the 16 sessions of constructive thinking skills decrease the subject's psychological defeatism and their attitude towards intellectual extremism. One-month follow-up results demonstrated that the effect of the programme had been maintained regarding the two dependent variables. Furthermore, there were no significant differences between the pre-test, post-test and follow-up tests of the control group subjects. In other words, the training programme based on constructive thinking was seen as an effective method to decrease psychological defeatism and intellectual extremism.

The effectiveness of the programme can be explained by discussing the sub-hypotheses' results, which in general are consistent with several studies indicating that constructive thinking skills contribute to dealing with stress and daily problems positively without boredom or weakness, and is a good predictor of success in performing various tasks (e.g., Epstein & Meier, 1989; Katz & Epstein, 1991). Moreover, individuals with low constructive thinking are exposed to a lot of negative emotions and suffer from physical, emotional and anxiety symptoms in contrast to those with high constructive thinking (Epstein & Katz, 1992), while people who can think irrationally have a high level of self-defeatism (Kaya et al., 2017).

The experimental group participants' low level of psychological defeatism can be attributed to the training programme that allows them to train on constructive thinking skills, motivating them to cope emotionally and behaviourally, encountering ET and NO. The programme prompted the students to practice each skill within the programme sessions and assign them to perform skills practically in stimulated situations which contributed to reducing the level of psychological defeatism. Besides, the motivating role of the trainer and training content concentrated on students' issues and problems. The utilised activities and techniques, such as self-talk, also helped the students to reduce the level of psychological defeatism, and this is in line with Al Attar's (2019) study results which states that there was a positive relationship between positive self-talk, dimensions of psychological defeat and

cognitive behavioural therapy techniques (imagining, figurative and vivid modelling, idea substitution, self-monitoring, symbolic exposure and space-filling).

The programme also reduced the experimental group participants' level of attitude towards intellectual extremism because of the effect of critical thinking skills. Training on constructive thinking inhibits negative and irrational thinking that is positively related to intellectual extremism and this is confirmed by various studies carried out previously (e.g., Al Sayed & Khayat, 2018; Al Sharjabi, 2016; Al Otaibi, 2018; Al Dahdah, 2019; Al Najjar, 2019; Ibrahim & Al Shazly, 2020; Mustafa & Rashwan, 2020; Raslan, 2018). The decrease in the level of attitude towards intellectual extremism in the experimental group may be due to the activities and techniques contained in the programme that helped the students of the experimental group reduce their level of intellectual extremism. The reason may be the content of the programme on which they were trained, and its motivation, values and convictions supported by evidence from the Qur'an, Sunnah and stories from the righteous predecessors; all of this contributed to reducing the level of psychological defeat and its components, as explained by Al Saadani and Mustafa (2017) that theological education plays a role in confronting extremism and terrorism.

The continuity of the effectiveness of the training programme in reducing the level of psychological defeat and the attitude towards intellectual extremism can be explained in light of the programme's effectiveness in helping the students master constructive thinking skills and motivating them to practice these skills continuously during training until they are practiced automatically in other situations. All of these made the behavioural and EC, optimism and the confrontation of deficient and supers thinking the most effective in reducing the level of psychological defeat and its components among students. Quranic texts and prophetic hadiths deepen religious determination, continuous work, optimism, hope and trust in God and then in oneself, and linking the content to the students' social and religious reality affects the lasting impact of the programme. Linking the content to the students' social and religious reality helped them to use that when needed in different situations. The interrelationship between knowledge, practice and convictions included in the content of the programme and its follow-up with homework and the use of skills in actual situations contributed to the survival of the programme's impact.

5. Conclusion

This section summarises the key ideas of the research and presents suggestions for researchers and stakeholders.

The results of the current research confirmed the role of training in constructivist thinking in reducing the level of psychological defeat and the attitude towards intellectual extremism among university students. Constructive thinking skills contribute to the treatment of intellectual and psychological problems among young people and linking constructive thinking skills with content that cares about various youth issues contributes to immunising young people intellectually and protecting them from deviation and the dangers of terrorism. In light of these results, the researcher recommends transforming the constructive thinking skills of university students into a culture and systematic practice and continuing the continuous detection of psychological and intellectual disorders among university students, providing programmes to treat or reduce them. The research urges those in charge of educational planning and policies to develop constructivist thinking skills among students with a level of psychological defeat and attitude towards high intellectual extremism by supporting the university curricula with constructivist thinking skills, as well as employing teaching methods and activities and providing training, educational and guidance programmes to develop

constructivist thinking skills and conducting more research that contributes to reducing the level of psychological defeat and the attitude towards intellectual extremism among university students.

Acknowledgement

The researcher thanks the Deanship of Scientific Research at Prince Sattam bin AbdulAziz University for supporting this research, as well as all the participants in the study.

Funding

This project was supported by the Deanship of Scientific Research at Prince Sattam bin Abdul Aziz University through research proposal No. 2021/02/17886.

Conflicts of interest

The author declares no conflicts of interest.

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