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Article

The Effects of Coaching Techniques on Well-Being of Digital-Technology Users

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Abstract: As digital technology has become indispensable, its overuse has resulted in mental health issues for many users. While it benefits people by providing fast and plentiful information, it also creates sadness, anxiety, and stress. This study aimed to assess the well-being of digital technology users before, during, and six months after attending a coaching session that was designed according to the International Coaching Federation (ICF) approach. Seligman's well-being model, consisting of positive emotion, engagement, relationships, meaning, and accomplishment (PERMA), was applied for the measurement, and then analyzed with descriptive statistics, repeated ANOVA, and paired-sample *t*-tests. The findings showed that coaching techniques can enhance well-being and that their results were maintained for six months after participation. In conclusion, coaching techniques should be promoted as a procedure for improving the well-being of digital technology users who face mental health issues.

Keywords: digital technology users; coaching; ICF; GROW model; well-being; PERMA model

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1. Introduction

In modern daily life, everybody experiences overwhelming exposure to digital technology, and the current COVID-19 pandemic has also drastically altered the lives of people all over the world. Various regulations, such as "work from home", encourage people to utilize digital technology [1]. Consequently, people spend more time on the internet and social media, where certain news or disturbing technology content can increase anxiety and stress [2]. The use of digital technology must be regulated, since it has the potential to harm individuals' well-being. The ability to cope with an overload of digital technology on a daily basis is strongly connected to a person's overall well-being [3].

According to the Digital Global Overview January 2022 report, out of the 7.91 billion global population in January 2022, the global number of internet users over the past decade increased from 2.17 billion to 4.95 billion (average growth 8.58% per year). The number of global social media users also increased, from 1.48 billion users to 4.62 billion users in January 2022 (average growth 12.11% per year). The growth in January 2021 of the total number of internet users and active social media users was 4.0% and 10.1%, respectively.

The advancement of digital technology and the internet can lead to addiction. It has been reported that the excessive use of digital technology, e.g., social media or smartphones, has a detrimental impact on people's mental health [4–6]. Ideally, the use of digital technology should be controlled, but current contexts lead users to consume it more often. Consequently, the increased time spent on social media has created social media fatigue, from which numerous people suffer. Furthermore, social media is sometimes problematic and dangerous for society, along with creating loneliness and increased anxiety and stress in individuals [2].

According to prior research, internet addiction has become a prevalent issue, particularly among daily users. Digital technology may waste valuable time among family and friends. Individuals who experience high levels of anxiety or stress may also feel sad and

have more communication problems, poor social relationships, and poor mental health [7]. The lack of importance placed on well-being for individuals and society as a whole has captured the interest of researchers attempting to quantify and find strategies and methods to improve well-being.

This study aims to fill a gap in the literature by proposing that the identification of coaching techniques is an effective method for fostering individual growth [8]. In a similar vein, coaching psychology presents a significant opportunity to employ positive psychology's principles of character strengths to improve one's own well-being [9].

Positive psychology is "the scientific study of the attributes that allow people and societies to thrive" [10]. These qualities may be identified by identifying the everyday habits that contribute to or are connected with these traits. Health behavior may be improved by using the PERMA (Positive Emotion, Engagement, Relationship, Meaning, and Accomplishment) framework to better understand its role in thriving.

It has been shown in previous studies that coaching may lead to the discovery of innovative themes and insights into the subject under study [11–13]. To address this research gap, this research also aims to contribute to coaching interventions, which can be valuable in increasing and maintaining the well-being of digital technology users with mental health problems.

2. Literature Review

2.1. Defining Coaching Technique

This is a new area of study examining the format of coaching and its impact on coaching results [14]. In traditional coaching, the coach and the mentee meet face-to-face. The goal of coaching is to assist the coachee in achieving personal development goals or valuable professional results through a process that is methodical, collaborative, and future-focused [9,15,16]. Coaching can be used for many purposes; one study's findings on coaching pointed out the considerable beneficial impacts on performance, behavior-based approaches, work attitudes, goal-directedness, and self-regulation in companies [17]. Coaching sessions can be conducted via telephone, online, or face-to-face [18].

However, there are many people who call themselves coaches, with various professional organizational training and development backgrounds, whose coaching ability is doubtful. To dispel this concern, we adopted the coaching-standard methodology established by the International Coaching Federation (ICF), which is a nonprofit worldwide organization that develops standard certification criteria for coaches and coach-training programs. It has developed and assigned core competency models based on ICF 2020 data, with over 41,500 individuals around the world.

The ICF has announced an upgrade to the ICF core competency model, which includes a strong focus on ethical behavior and confidentiality, the significance of a coaching mentality and continuing reflective practice, the value of collaboration between a coach and a coachee/client, and systematic and contextual awareness. Coaching techniques are relatively new and can be defined as a collaborative and solution-focused systematic process that improves well-being and enables goal attainment and positive transformation [19]. As part of a mutually beneficial interaction between coach and coachee, it helps individuals define and work toward their own personal goals while also providing a supportive environment for the coachee to work toward his or her own objectives [20,21].

However, there is growing recognition that coaching techniques may be used for a variety of reasons [22], and since prior research on coaching techniques has been limited, there should be a research that confirms the effectiveness of coaching techniques that have been designed to help the coachee focus on their goals, aiding them in the process of devising and implementing new approaches to goal setting as part of their coaching technique. The GROW model, i.e., Goal, Reality, Options, and Way Forward, was used to structure each coaching session to increase the well-being of digital technology users [23,24]. Goal setting and achievement are usually the emphasis of coaching, whereas practices in

mental health and well-being may have a range of goals. Coaching seeks to reduce stress, improve self-awareness and self-care, and teach clients to become more flexible.

2.2. Theory of Well-Being

The many attempts to describe well-being have concentrated solely on its characteristics rather than its definition. Positive psychology is committed to well-being, and this has spread across many fields, such as psychology, philosophy, economics, and sociology [25,26]. Investigations and studies on mental health and well-being have provided ideas for treatments in order to reduce patient suffering [27–29].

Positive psychology has two broad conceptions of well-being: hedonia and eudaimonia. Factor analysis has revealed different, yet related, constructs that parallel hedonia and eudaimonia as alternatives [30]. Both notions are linked to life satisfaction, vitality, and self-esteem. Hedonia has its origins in philosophy, which in turn has a significant influence on positive-psychology theory, since happiness is typically equated with well-being in philosophy [31].

The concept of well-being has been seriously examined in psychology for over a century. The work of one psychologist, Diener, focused on the examination of the degree of importance linked with hedonia, while an SWB survey was developed and analyzed over the years [27,32,33]. As an operational definition, SWB aligns with the hedonia approach and is most commonly used to imply an individual's experience of positive affect, negative affect, and satisfaction. SWB research views well-being by including various aspects other than happiness. Life satisfaction is a subjective concept that may be measured in terms of the cognitive and emotive aspects of the individual's perceptions of their own well-being [34].

However, another type of well-being that can contribute to how individuals appraise their lives and happiness is known as eudaimonic well-being. The eudaimonia viewpoint may be traced back to Aristotle (translated by Irwin [35]) and is compatible with a variety of twentieth-century philosophical traditions, including humanistic psychology. Ryff's well-validated theory of PWB was a major early theory that was developed based on a survey of a large body of multidisciplinary well-being theory and literature [36,37]. The theory identifies six core dimensions of positive psychological functions: self-actualization, autonomy, environmental mastery, positive relationships, life purpose, and personal growth. Interestingly, Ryff's six dimensions of psychological well-being were limitations of the existing research, including the absence of a theoretical framework, an over-focus on ill-being, a failure to treat the construct of well-being as dynamic rather than static, and a failure to account for cultural and value-added differences regrading what constitutes well-being [38].

In 2011, with regard to research on well-being, Seligman developed the foundations of positive psychology through a model named 'Flourish', which was the first model to be detailed in a best-selling trade book and later adopted by worldwide psychology practitioners [39]. For Seligman (2011), the dynamic character of well-being consists of numerous ideas and experiences that are linked to one another. Human flourishing, he says, is composed of the constituents of this new dynamic model [40]: positive emotions, agreement, relationships, meaning, and achievement (PERMA). This well-being model combines elements of hedonia and eudaimonia into a single concept. This study used PERMA theory, due to its integration of both hedonic and eudaimonic theories, to form a more complete and popular model, as shown in Figure 1.

This research focuses on perspective as an instrument through measuring indicators based on the PERMA model, consisting of five domains, defined by Seligman as positive emotion (P), engagement (E), relationships (R), meaning (M), and accomplishment (A) [39].

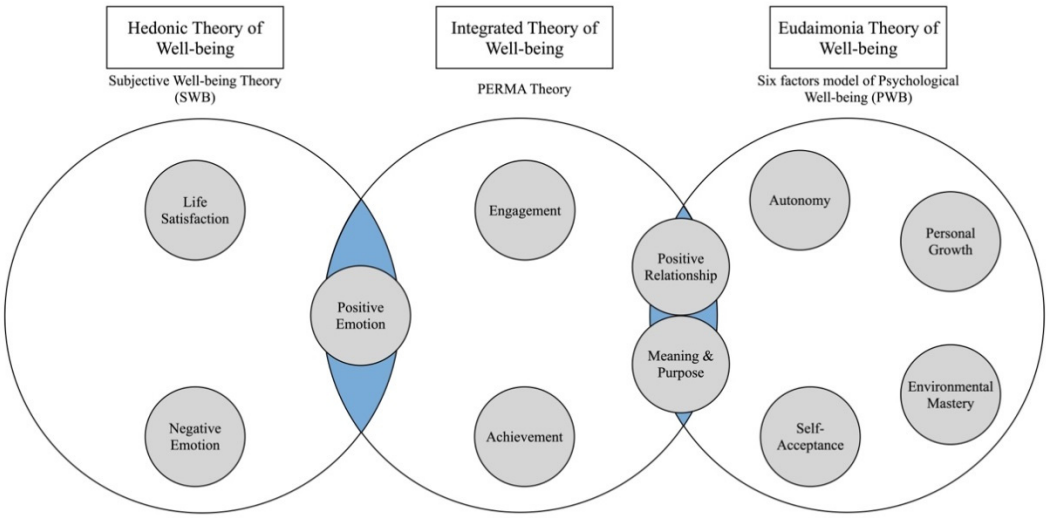


Figure 1. Well-being factors based on hedonia (subjective well-being theory), eudaimonia (psychological well-being six factor model), and integrated approaches (PERMA theory).

2.3. Hypotheses Development

2.3.1. Coaching Technique and Positive Emotion (P)

The first aspect is positive emotion, which is a cornerstone of Seligman's well-being model [39]. Numerous studies have found that positive emotion is important in a variety of life outcomes, including psychological stability, physical health, and cognitive performance [41–43]. Previous studies have shown that the self-regulation of positive emotions has a significant impact on overall well-being [41–43]. Typically, significant individual differences are seen in how people regulate their positive emotions [44].

The broaden-and-build theory has proposed that cultivating positive emotional support in the development of long-term resources, which consecutively improves life satisfaction, increases the possibility of experiencing future positive emotion, and fosters resilience to negative ones [45–47].

Hypothesis 1 (H1). *Coaching techniques offer more benefits to the intervention group (experimental) than to the controlled group. The subjects increase positive emotion after the intervention (Post) compared to before the intervention (Pre) and still maintain this six months after the intervention (After).*

2.3.2. Coaching Technique and Engagement (E)

Engagement represents psychological attachment or connection to activities that require the most involvement and interest; it is synonymous with the sensation of flow [48]. Defined as a high degree of psychological involvement involving intense attention, absorption, and focus, flow has been the primary focus of measures [49]. In a state of flow, activity and cognition become integrated and emotional awareness is generally absent [50].

Engagement is a type of positive practice that has received a wealth of attention [51]. Peterson, Park, and Seligman proposed engagement as a pathway to happiness associated with life satisfaction [52].

Hypothesis 2 (H2). *Coaching techniques increase engagement in the intervention group (experimental) compared to the control group after the intervention (Post) compared to before the intervention (Pre) and maintain it six months after the intervention (After).*

2.3.3. Coaching Technique and Relationship (R)

Relationships entail developing a positive relationship with someone in a positive and meaningful way. Connections with loved ones and colleagues, as well as the feeling of being supported, loved, and valued by others, are examples of positive relationships. [39]. Social relationships are often regarded as the most important component of well-being, and their influence on optimal functioning has been intensively researched [53]. We may improve our personal well-being by cultivating healthy relationships with those around us [54].

Coaching is recommended as a useful tool to establish nurturing environments and supportive connections. Participants who understand others are better able to generate positive emotions, calm and control processes within their brain and body, and produce a more effective stress-response system, dynamic relationships, and well-being [55].

Hypothesis 3 (H3). *Coaching techniques improve relationships in the intervention group (experimental) compared to the control group after the intervention (Post) compared to before the intervention (Pre) and maintain them six months after the intervention (After).*

2.3.4. Coaching Technique and Meaning (M)

Meaning refers to the feeling of purpose, better quality of life, and a lower risk of health problems [56]. To be human is to seek meaning, which Seligman defines as a feeling of connection and service to something higher than oneself [57]. When faced with adversity, having a sense of direction in life may be quite beneficial. Physical health, lower mortality risk, and increased life satisfaction have been linked to this aspect [58–60].

Hypothesis 4 (H4). *Coaching techniques increase meaning in the intervention group (experimental) compared to the control group after the intervention (Post) compared to before the intervention (Pre) and maintain it six months after the intervention (After).*

2.3.5. Coaching Technique and Accomplishments (A)

The last component of PERMA is accomplishment. This is defined as the consequences of working towards and accomplishing goals, which are pursued for personal gain. This contributes to well-being because a person may look back on his/her life with pride [57]. Achieving internal objectives, including progress and connection, is more important than achieving external objectives, such as money or celebrity, in terms of increasing happiness [61]. Individuals' belief in their capacity to perform well in a specific subject, or self-efficacy, is a fundamental motivator of achievement [62].

Coaching is a proven strategy for increasing individuals' sense of accomplishment [63]. Despite the obvious potential benefits of coaching, research has not kept up with its development in practice, and there is a lack of convincing proof that it improves accomplishment. A plethora of research has connected coaching technique interventions with improving accomplishment outcomes.

Hypothesis 5 (H5). *Coaching techniques will increase accomplishment in the intervention group (experimental) compared to the control group after the intervention (Post) compared to before the intervention (Pre) and maintain it six months after the intervention (After).*

2.3.6. The Durability of Coaching

According to previous studies, longitudinal research is required to demonstrate that the effect of coaching is more than a fortunate accident. Therefore, it is important to create a cohort study to follow up on the effectiveness of coaching interventions over a period of time [64]. According to the limited longitudinal studies that have been conducted so far, coaching produces long-term improvements in coachees [21,64].

Consequently, this study attempted to investigate the durability of outcome effects due to coaching based on the PERMA model.

Hypothesis 6 (H6). *The intervention group (experimental) will show sustained increased well-being at six months after the coaching-intervention program (After) compared to post-intervention (Post).*

Furthermore, efficient approaches to coaching technique instruction must be further developed [65,66], while empirical research with robust design approaches and quantitative methods to examine the potential long-term impacts of these intervention programs are also required [21,67].

However, there is a lack of studies exploring whether coaching is more effective for individual well-being. Such issues are currently spreading, as many individuals strive to find a solution to this mental health issue. Therefore, in this study, we propose that the coaching approach is a tool to enhance the well-being of digital users. This study was a controlled-trial, quasi-experimental study with volunteers who used digital technology and had mental health problems to investigate how coaching techniques can help digital technology users improve their well-being and how this can be maintainable in order to help people with mental health problems based on the PERMA model indicator developed by Seligman. [39].

The proposed work demonstrates the well-being improvement achieved through the coaching intervention. The secondary objective was to maintain well-being six months after the coaching intervention. This design for the improvement of well-being can be maintained after following the coaching technique for six months.

3. Materials and Methods

Participants were recruited through informational online advertisements on the website 'Happiness Coach'. The website informed participants about the nature of the study, and an informed consent form was provided in the first pages of the online survey. If participants signed the consent forms, they were asked to answer the questionnaire. This program required the purposive sampling of digital technology users with mental health problems, such as stress, anxiety, and depression. The study was reviewed and approved by an ICF coach.

3.1. Sample

As a result of the types of statistical power analyses and effect size, this study used G*Power, version 3.1.9.7, to calculate its sample size. The software used input types of statistical tests and parameters, such as alpha (α), power, degree of freedom (df), and effect size, to calculate the sample size for the experiment. In this study, we use Repeated ANOVA measures, between factors, $\alpha = 0.05$, power = 0.80, df = 84, and effect size = 0.25 based on Cohen's suggestions. In total, 110 samples were collected for this study, which corresponds to the statistical repeated ANOVA technique, which required a sample size of at least 86 for this study.

3.2. Demographics

The basic inclusion criteria for sampling selection were a digital technology user who spent seven hours or more per day using digital devices and experienced mental problems as a result. A total of 134 participants were obtained voluntarily, while 24 cases were excluded because they did not qualify for the study or due to missing data. The remaining 110 participants were allocated based on a random balanced two-factor trial design as the experimental group (n = 55, 50%) and the control group (n = 55, 50%). The sample group for this research (n = 110) included 50 males and 60 females varying in age between 20 and 51 years. The groups are described in Table 1.

Table 1. Demographics of Experiment and Control Group.

Demographic		Experiment Group	Control Group
(n = 110)		(n = 55)	(n = 55)
Gender	Male	25 (45.45%)	25 (45.45%)
	Female	30 (54.55%)	30 (54.55%)
Age	20–30 years	24 (43.64%)	21 (38.18%)
	31–40 years	13 (23.64%)	11 (20.00%)
	41–50 years	18 (32.72%)	23 (41.82%)
Marital Status	Single	39 (70.91%)	32 (58.18%)
	Married	16 (29.09%)	23 (41.82%)
Education	Bachelor's degree	32 (58.18%)	43 (78.18%)
	Higher than bachelor's degree	23 (41.82%)	12 (21.82%)
Occupation	Office workers	30 (54.55%)	20 (36.36%)
	Business owners	10 (18.18%)	12 (21.82%)
	Executives	15 (27.27%)	23 (41.82%)
Salary	15,001–50,000 THB	25 (45.45%)	43 (78.18%)
	50,000–100,000 THB	19 (34.55%)	8 (14.55%)
	More than 100,000 THB	11 (20.00%)	4 (7.27%)

3.3. Procedure

The experimental group was to attend the coaching-intervention workshop for four weeks and the control group had no intervention; for the latter group, consultation was considered but no coaching techniques were involved. A follow-up questionnaire six months after the intervention was assigned to both groups.

Direct links to online surveys were sent to each participant via email at three separate times: before the program (time 1: Pre), immediately after the program (time 2: Post), and six months after the program (time 3: After). Three separate rounds of online surveys were assigned to both the experimental and control groups, to be completed by all participants throughout the study. Over the course of four weeks, a coaching technique was used to evaluate the experimental group three times, while the control group did not receive any interventions and simply answered an online questionnaire as a baseline measure. The study's research strategy is shown in Figure 2.

Time 1 (Pre): Before beginning the intervention, a pre-assessment was completed. This determines the mood of the subjects to set a baseline and the subsequent indications of change. A well-being evaluation questionnaire was also completed to assess preparedness by the coach.

Time 2 (Post): Post-intervention evaluation of quantitative data focusing on effects based on the PERMA model show well-being and positive–negative results, repeating baseline critiques of perceived helpful/unhelpful elements of intervention aspects.

Time 3 (After): The third and final instance was a follow-up evaluation six months after the intervention is completed. This includes the administration of a repeated analysis of the current mood and well-being of both subject groups.

Coaching Technique Intervention Program Description

In this intervention, a qualified coach from the International Coaching Federation (ICF) led the coaching techniques program, who was trained in a variety of coaching methods. Five expert ICF coaches were asked to conduct coaching sessions over four weeks. The activities were facilitated by a coach to a group of 11 coachees with the same sequences. The program characterized coaching as occurring in a relaxed atmosphere, in which participants

may enhance their capacity for self-discovery and raise their self-awareness, while the coach motivates the coachee to begin a process of continuous learning and growth via relationship building. The program's major objective was to assist in increasing well-being based on the PERMA model: positive emotion, engagement, relationships, meaning, and accomplishment.

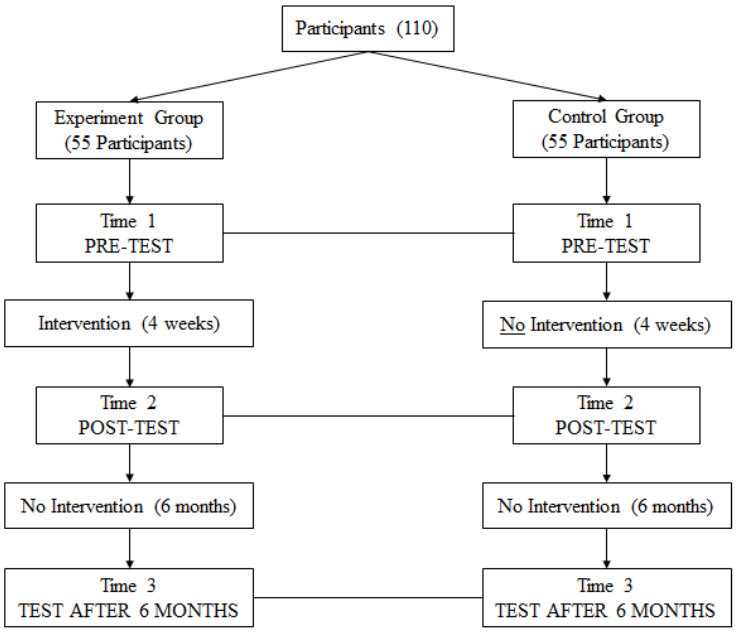


Figure 2. Experimental design; research plan of intervals for Pre, Post, and After in the experimental and control groups.

The personal coaching process facilitated goal attainment by helping individuals to: (1) develop a future vision, (2) establish specific personal goals, (3) enhance their motivation by identifying strengths and building self-efficacy, (4) identify resources and formulate action plans, (5) monitor and evaluate progress, and (6) modify action plans (where necessary). The intervention model involved in this study expanded Grant's model to constitute a cycle of self-regulation [15]. As shown in Figure 3, this self-regulator cycle is where the coach plays an important part in helping the coachee remain on track toward their objectives by helping them build action plans that must be accomplished before the next coaching session.

This study examined and confirmed the validity and reliability of previous research on coaching sessions, using a technique called the GROW model, to provide coaching sessions for group coaching [24]. Every week, the coaching workshop provided an ICF core-competence idea to ensure that coaching dialogues stay objectively focused on structuring coaching interactions. They are commonly used to arrange coaching dialogues and implement coaching techniques in activity workshops. When adopting the GROW model, coaching sessions begin by aiming to be able to implement a four-step model: goal, reality, option, and will forward, as previously suggested [68].

The GROW model is a method of thinking utilized during coaching that plays a key role in retaining coaches. In the coaching process of defining particular objectives and long-term goals, the coach and coachee discuss the digital stress of contemporary society, possibilities, and how they have responded to the issue thus far. Instructors must define attainable goals and prepare activities to deliver on their well-being, before generating choices for operations and finishing the operations in digital technologies that emphasize the helpful processes via measurement using the PERMA model. These guidelines may help people follow treatment plans more closely but relying on them excessively might lead to an overly mechanical approach [69]. This is because the goal is to make the coaching

session as realistic as possible while also helping each person learn more deeply. Coaches were urged to be adaptable in their use of coaching methods and to create their own personalized style of coaching technique.

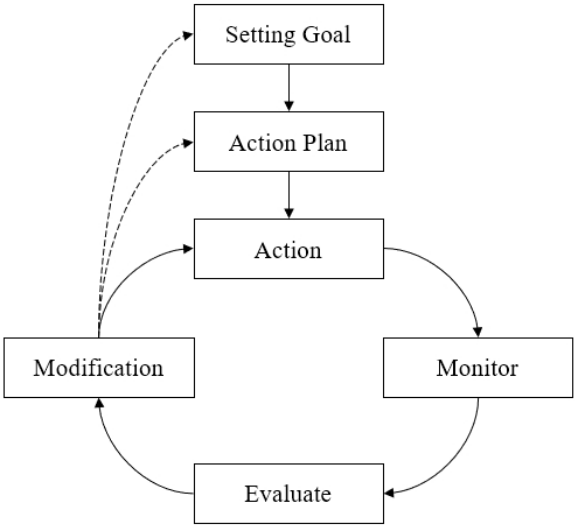


Figure 3. Coaching techniques program intervention model based on the generic self-regulation cycle [15].

The intervention was administered in the form of a group workshop for a period of four weeks and delivered in weekly group sessions lasting 360 min. The number of coaching sessions has been shown to have no impact on the efficacy of the intervention; therefore, even short-term coaching may be effective [70].

The first session included a presentation and the findings of the pre-assessment questionnaire (PERMA measurement of well-being), after which participants received well-being-related coaching-method input, including information and explanations of tasks, as well as mindfulness practice. The subsequent session blended academic content with activities among participants to practice, which included powerful questioning and deep listening. During session 2, participants created a goal linked to the development of their coaching session on the findings of the pre-assessment and the workshop materials. In addition, participants were given the GROW model to practice. The third session involved theory and practice relating to facilitating development, providing feedback, and identifying strengths, and skill developments were presented [71,72]. During this session, participants focused on the identification, development, and application of personal strength, as well as the creation of a 'strengths in action' plan and feedback process [73–75].

Participants gained experience in goal setting. In the fourth session, participants discussed alternatives to achieving the objective stated during the session and created an action plan that would be revisited during the individual coaching process. In the fifth session, participants developed more self-confidence and created goals for themselves that were related to their well-being. The last, or closing, session was held to check positive and negative emotions, and participants were motivated to continue working on goal attainment throughout the coaching process and follow up on their action plans. Finally, participants were asked to complete the post-assessment questionnaire. Table 2 provides details on specific activities used in coaching interventions.

Table 2. Specific coaching sessions.

Session	Coaching Technique	Activities
1	Identify Issues: Group Coaching (n = 55) Workshop: Coaching ICF core competency Create Emotion: Be present, build trust	Presentation, objectives, structure, and rules of the intervention Pre-assessment: reflection and feedback Provide: group work session and mindfulness practice
2	Clarify and Explore: Personal introduction by coach to help the participants having a hard time opening up and for whom the process is difficult. GROW Model Step 1: Goal setting (SMART + goals)	Pause: Mindfulness practice Practice: Powerful questions and deep listening Setting Goals: Related to development or progress of coaching technique
3	Approach Actions: Help set intentions Provide: Feedback and development GROW Model Step 2: Check situation reality (personal strengths, weaknesses, opportunities, and limitations)	Pause: Mindfulness practice Provide: Detect and develop strengths in action, focus efforts, and increase the chance of achieving goals Practice: Effective questioning, listening, and feedback process
4	Design Actions: Help design supportive systems and structures Define success criteria GROW Model Step 3: Explore options and planning goal setting	Pause: Mindfulness practice Provide: Table of alternative advantages and disadvantages Practice: Create clear, attainable, and meaningful goals and develop the motivation to action plan
5	Support Actions and Motivation Accountability GROW Model Step 4: Establish will Managing progress	Pause: Mindfulness practice Provide: Exercises and reviews. Practice: Action plan: establish support needed for goal achievement Pause: Mindfulness practice
6	Recap and Feedback Closing: Review and reflection	Provide: Exercise of checking positive and negative emotions Practice: Share and discuss Follow-up of the action plan Post-assessment

Eventually, coaches concentrate on closing the gap between digital technology stresses and well-being requirements, as well as establishing an atmosphere for instructors to explore new possibilities or solutions and improve operations accordingly. Mindfulness and positive-behavior change may be included in coaching approaches, and cognition-related viewpoints may also improve well-being. Following the workshop, attendees might take three steps, as follows. (1) Discovery: participants identify their well-being by answering powerful questions. (2) Integration: participants reflect on areas for development and possibilities for goal attainment. (3) Action: participants consider how to better achieve their objectives [76]. As a result, this study discovered that coaching approaches might be helpful in boosting well-being based on the PERMA model.

3.4. Measurements

The well-being measurement was conducted three times: before (Pre), after (Post), and six months following the coaching workshop (After). During the survey, data were collected using a set of questionnaires consisting of five dimensions of the PERMA model. The questionnaire was constructed based on a five-point Likert scale [77]. Fifteen questions were designed in total for five dimensions (three questions for each) using a 5-point Likert scale ranging from 0 (strongly disagree) to 5 (strongly agree). The contents were validated by five knowledgeable experts in the field of coaching from ICF. The questions on these questionnaires were evaluated by item-objective congruence (IOC) based on a score ranging from −1 to +1. Items lower than 0.50 were revised, and those higher than 0.50 were reserved.

The reliability of the questionnaire was evaluated using Cronbach's alpha [78]. As seen in Table 3, this was based on the reliability of the well-being questionnaire with five PERMA indicators, divided into three groups of three items: positive emotion, engagement, relationships, meaning, and accomplishment; items with results between 0.752 and 0.899 were used.

Table 3. Reliability test.

Dimensions	Cronbach's Alpha	No. of Item
Positive Emotion	0.816	data
Engagement	0.853	data
Relationships	0.752	data
Meaning	0.899	data
Accomplishment	0.855	data

The results showed that all the test constructs had reliability higher than 0.7; therefore, further analysis was acceptable. The pre-test (Pre) was performed before the coaching workshop. Subsequently, the participants took part in the coaching technique workshop. Participants answered the same questionnaire after the workshop (Post), and again six months after the workshop (After).

3.5. Data Analysis

Quantitative data were employed in this study where analysis of variance (ANOVA) was used, and different datasets were evaluated quantitatively using SPSS. The first descriptive-statistic repeated ANOVA test and paired samples *t*-test were used to determine whether there were significant differences in the study variables and the effects of the experiment and control groups' data. The effects were analyzed using repeated-measures ANOVA, which include two between-subject factors amongst both groups. The first evaluation before intervention was called Pre, the second assessment after intervention was Post, and the third examination six months after intervention was After.

Furthermore, the analysis for all outcome variables was also applied to identify effects possibly overlooked in the ANOVA. All tests were given a significance level of 0.05 followed by Cohen's d test as a measure of impact magnitude in mean and standard deviation (SD), and an F-test in the intervention program.

Since the experimental group (n = 55) completed the intervention program and the control group (n = 55) had no intervention, paired-sample t-tests were performed for the whole of each group to test for differences between the Pre, Post, and After assessments. Regarding this comparison, the evaluation occurred immediately after and six months after the intervention for the experimental group, when the PERMA well-being model's scores were measured.

Finally, while participants' responses were systematically classified and grouped by thematic content to analyze qualitative data on the outcomes of the intervention program, the frequency and percentage of each emerging category were also estimated.

4. Results

4.1. The Descriptive Statistics

Table 4 shows the means and SDs of PERMA's five dimensions of three time points, which are scores for Pre, Post, and After.

Table 4. Descriptive data: Mean and standard deviation of PERMA (Pre, Post, and After).

	Mean			SD		
Dimension	**Pre**	**Post**	**After**	**Pre**	**Post**	**After**
Positive Emotion	3.32	3.86	3.59	0.60	0.86	1.05
Engagement	3.41	3.92	3.52	0.51	0.83	1.17
Relationships	3.54	3.88	3.58	0.52	0.88	1.16
Meaning	3.41	3.84	3.52	0.59	0.90	1.22
Accomplishment	3.23	3.68	3.25	0.63	0.92	1.35

4.2. Repeated ANOVA Test for PERMA Model

Details in Table 5 show the Pre, Post, and After scores' means, SDs, F-test, p values, and Cohen's d test results. These data indicate that the five dimensions of the PERMA model at different time points were significantly different for both the experimental and controlled groups. Here, positive emotion attained mean scores of 3.32, 3.86, and 3.59 (F = 175.158, p = 0.001, d = 0.766); engagement attained mean scores of 3.41, 3.92, and 3.52 (F = 241.004, p = 0.001, d = 0.818); relationships attained mean scores of 3.54, 3.88, and 3.58 (F = 184.471, p = 0.001, d = 0.775); meaning attained mean scores of 3.41, 3.84, and 3.52 (F = 189.959, p = 0.001, d = 0.780); and accomplishment attained mean scores of 3.23, 3.68, and 3.25 (F = 268.502, p = 0.001, d = 0.834), respectively.

Table 5. Pre, Post, and After score means, standard deviations, F-test, p values, and Cohen's d test results for the whole group.

PERMA	Measurement	Mean	S.D.	F	p Value	Cohen's d
Positive Emotion	Pre	3.32	0.60	175.158	0.001 **	0.766
	Post	3.86	0.86			
	After	3.59	1.05			
Engagement	Pre	3.41	0.51	241.004	0.001 **	0.818
	Post	3.92	0.83			
	After	3.52	1.17			
Relationships	Pre	3.54	0.52	184.471	0.001 **	0.775
	Post	3.88	0.88			
	After	3.58	1.16			
Meaning	Pre	3.41	0.59	189.959	0.001 **	0.780
	Post	3.84	0.90			
	After	3.52	1.22			
Accomplishment	Pre	3.23	0.63	268.502	0.001 **	0.834
	Post	3.68	0.92			
	After	3.25	1.35			

Significance level at ** $p < 0.01$.

4.3. Paired-Samples t-Test

We also thoroughly analyzed the difference between Pre and Post by using paired-sample t-test analyses on both the experimental and control groups. The results showed that all five PERMA dimensions in both groups had a statistically significant difference in the time period according to the details for the experimental group, as follows: (1) positive emotion showed average differences of 3.34 and 4.55 (t = −21.788, p = 0.000); (2) engagement showed average differences of 3.43 and 4.59 (t = −24.211, p = 0.001); (3) relationships showed average differences of 3.56 and 4.65 (t = −18.252, p = 0.001); (4) meaning showed average differences of 3.43 and 4.63 (t = −17.099, p = 0.001); and (5) accomplishment showed average differences of 3.25 and 4.46 (t = −16.726, p = 0.001) at Pre and Post, respectively.

As hypothesized and predicted, the control group showed lower scores in all the dimensions, as follows: (1) positive emotion showed average differences of 3.30 and 3.18 (t = 1.324, p = 0.191); (2) engagement showed average differences of 3.41 and 3.25 (t = 2.210, p = 0.031); (3) relationships showed average differences of 3.50 and 3.10 (t = 6.372, p = 0.001); (4) meaning showed average differences of 3.39 and 3.04 (t = 6.927, p = 0.001); and (5) accomplishment showed average differences of 3.20 and 2.90 (t = 3.772, p = 0.001), respectively, with details shown in Table 6.

Table 6. Means and SDs of paired-sample t-testing between experimental and control groups.

	Experimental (n = 55)				Control (n = 55)			
	Pre	**Post**	***t***	***p***	**Pre**	**Post**	***t***	***p***
Positive Emotion	3.34 (0.702)	4.55 (0.453)	−21.788	0.001 **	3.30 (0.489)	3.18 (0.587)	1.324	0.191 *
Engagement	3.43 (0.637)	4.59 (0.535)	−24.211	0.001 **	3.41 (0.337)	3.25 (0.425)	2.210	0.031 *
Relationships	3.56 (0.643)	4.65 (0.439)	−18.252	0.001 **	3.50 (0.356)	3.10 (0.374)	6.372	0.001 **
Meaning	3.43 (0.784)	4.63 (0.485)	−17.099	0.001 **	3.39 (0.308)	3.04 (0.314)	6.927	0.001 **
Accomplishment	3.25 (0.811)	4.46 (0.557)	−16.726	0.001 **	3.20 (0.365)	2.90 (0.423)	3.772	0.001 **

Significance level at ** $p < 0.01$; * $p < 0.05$.

In addition to this, we also thoroughly analyzed the difference between Post and After by using paired-samples t-test analyses on both the experimental and control groups; the results showed that all five PERMA dimensions in the experimental group had no statistically significant differences, while those of the control group had statistically significant differences in all five PERMA dimensions. In the experimental group, (1) positive emotion showed average differences of 4.55 and 4.55 (t = 0.256, p = 0.799), (2) engagement showed average differences of 4.59 and 4.56 (t = 0.896, p = 0.374), (3) relationships showed average differences of 4.65 and 4.64 (t = 0.574, p = 0.568), (4) meaning showed average differences of 4.63 and 4.61 (t = 1.137, p = 0.261), and (5) accomplishment showed average differences of 4.46 and 4.49 (t = −1.093, p = 0.279), respectively.

As shown in Table 7, for the control group, (1) positive emotion showed average differences of 3.17 and 2.64 (t = 5.546, p = 0.001), (2) engagement showed average differences of 3.25 and 2.47 (t = 7.988, p = 0.001), (3) relationships showed average differences of 3.10 and 2.52 (t = 7.286, p = 0.001), (4) meaning showed average differences of 3.04 and 2.43 (t = 8.354, p = 0.001), and (5) accomplishment showed average differences of 2.90 and 2.00 (t = 11.256, p = 0.001), respectively.

Table 7. Paired-samples t-test between Post and After between the experimental and control groups.

	Experimental (n = 55)				Control (n = 55)			
	Post	**After**	***t***	***p***	**Post**	**After**	***t***	***p***
Positive Emotion	4.55 (0.453)	4.55 (0.472)	0.256	0.799	3.17 (0.587)	2.64 (0.424)	5.546	0.001 **
Engagement	4.59 (0.535)	4.56 (0.508)	0.896	0.374	3.25 (0.425)	2.47 (0.543)	7.988	0.001 **
Relationships	4.65 (0.439)	4.64 (0.434)	0.574	0.568	3.10 (0.374)	2.52 (0.495)	7.286	0.001 **
Meaning	4.63 (0.485)	4.61 (0.477)	1.137	0.261	3.04 (0.314)	2.43 (0.576)	8.354	0.001 **
Accomplishment	4.46 (0.557)	4.49 (0.562)	−1.093	0.279	2.90 (0.423)	2.00 (0.451)	11.256	0.001 **

Significance level at ** $p < 0.01$.

5. Discussion

5.1. Discussion

This study provides statistically significant data to show the effects of a coaching technique program on participants who were digital technology users with mental health problems. Overall, the results of the study revealed that the interventions program was a successful strategy to improve the participants' well-being based on the measures of the

PERMA model after participating in the four-week program. For the experimental group, the results of the study were as hypothesized when the main tools were used during the coaching sessions.

The comparative results based on the PERMA model at different time intervals (Pre, Post, and After) between the experimental and control groups are presented in Figure 4. Figure 4a–e show that the level of PERMA of the experiment group (group 1) are significantly higher that the control group (group 2).

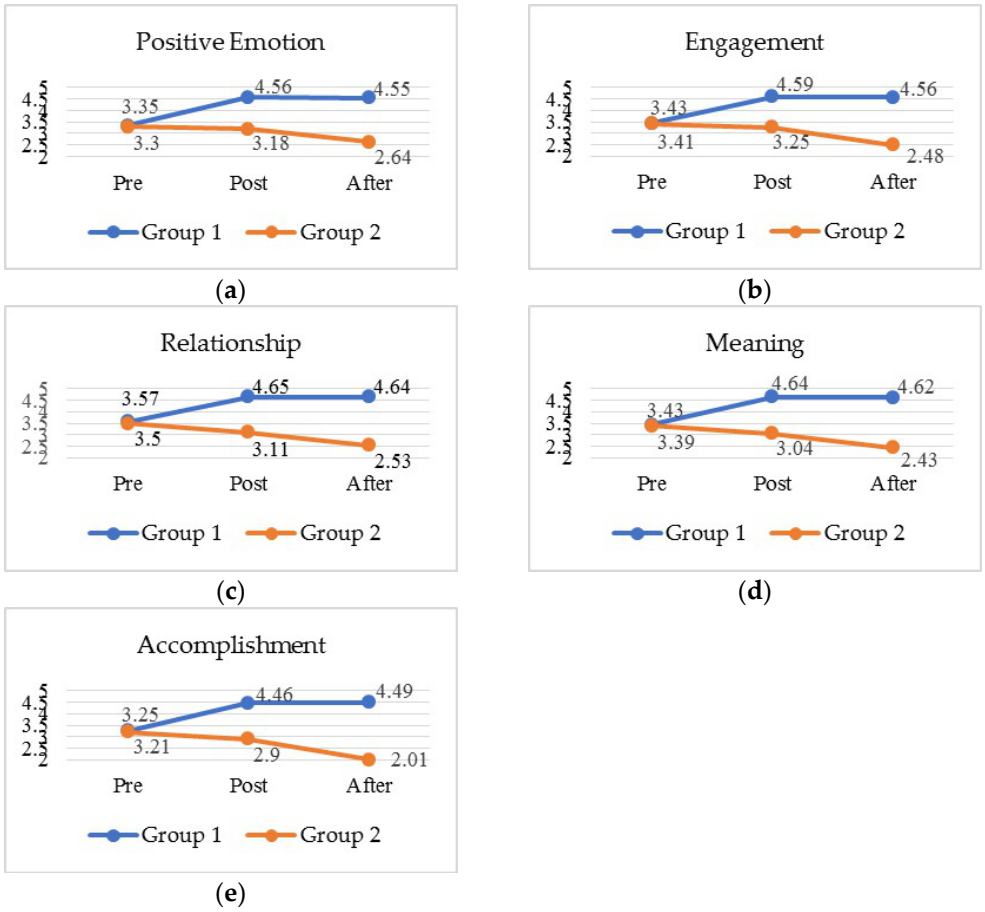


Figure 4. Comparative results based on the PERMA model between the experimental (group 1) and control (group 2) Pre, Post, and After.

Regarding the effects of the intervention program on well-being based on the PERMA model, the results supported the H1–H5 hypotheses, indicating that the coaching technique can be utilized to urge participants to express their emotions, as well as to provide benefits in terms of positive emotion. This could be further explored with the participants for a possible extension of the future experience of positive emotions. Helping participants clarify their values or explore and develop their strengths may also result in increased levels of positive emotion over time.

This includes increased engagement in the kinds of activities that help increase a person's engagement in life, increase the quality of positive relationships, and perhaps also reduce their exposure to negative or abusive relationships over time. This can show participants the benefit of meaningful values that matter to people and the things that they feel are the foundation of a good life.

Once the values have been clarified, the coach can explore with the participants how these values appear in their lives at that moment [79], and the coaching techniques can encourage participants to set one or two value-informed, achievable, long-term, and short-term-approach-type goals in different life areas, to encourage them to develop and

implement their plan to reach those goals, along with the accompanying feeling of accomplishment.

However, regarding the effectiveness of the control group showing the downside score of the PERMA model, it can be inferred that the coaching sessions were beneficial when compared to no intervention. Moreover, the time period in this study showed that the test scores tended to decrease, indicating that no significant differences were found between Post and After.

Moreover, although the results of the durability of the effectiveness revealed lower levels of intervention outcome variables after six months post-intervention in positive emotion, engagement, relationships, and meaning, a higher level was obtained for accomplishment. Figure 5 shows the study variables for the experimental group (n = 55) on the PERMA model at Pre, Post, and After. Thus, H6 was confirmed. We believe that coaching techniques could motivate and maintain participants' sustainable well-being in their lives. Figure 5a–e shows that the levels of PERMA of experiment group can be sustained 6 months after the intervention.

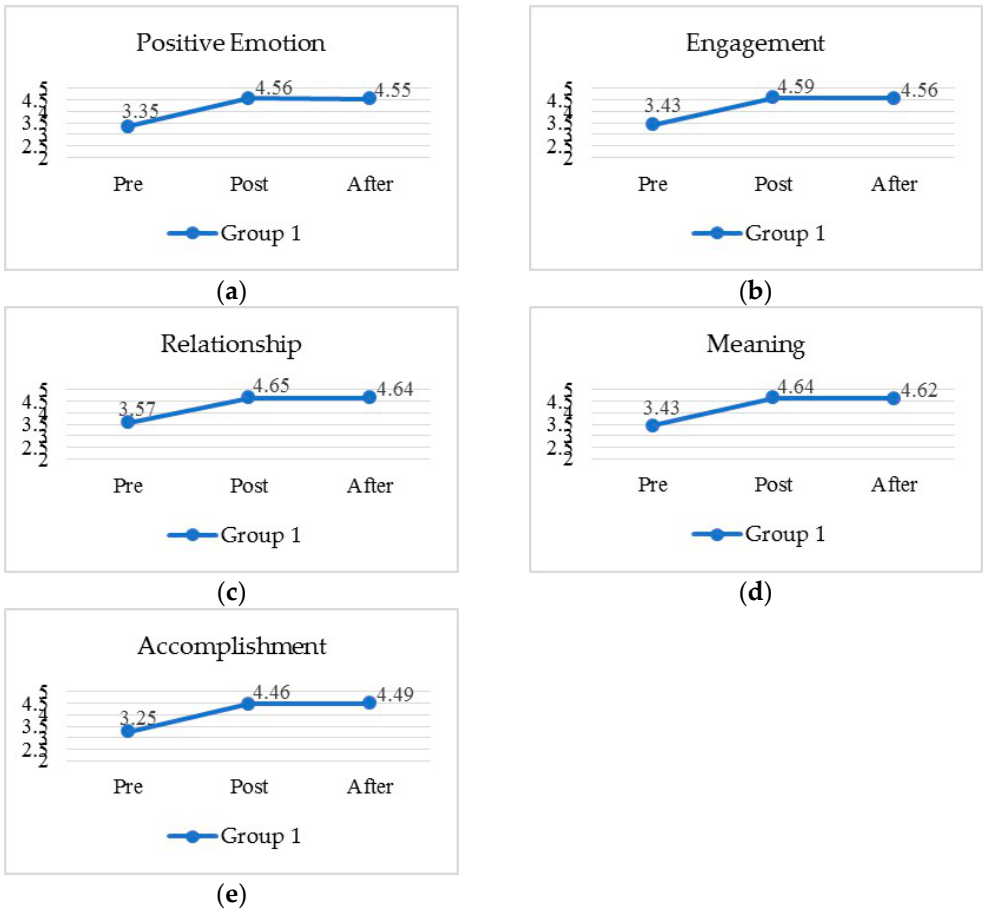


Figure 5. Comparison between Pre, Post, and After for the experimental group (group 1).

Based on the objectives and hypotheses established by the researchers, the researchers proposed the use of coaching techniques to effectively help people with mental health problems arising from the use of digital technology, and the results remained statistically significant after the experiment. By using coaching techniques to raise awareness and involvement using the GROW model to manage the questions, participants determine the importance of their goals and eventually devise their own solutions. This process is used to help participants to develop a thought process regarding their future goals and create positive emotions and positive attitudes.

Coaching techniques do not depend on gender, age, education, or occupation. Rather, they are focused on managing emotions and thoughts. When comparing the participants between the experimental group and the control group with random intervention, it was seen that the participants in the control group who did not participate in the experiment had a problematic mental health condition that reduced the number of outcomes. The longer the condition is left unmanaged, the further the mental health levels will drop, regardless of gender, age, education, or occupation, as mentioned above. This shows that applying coaching techniques is likely to be beneficial in significantly improving mental health for people of all ages. Furthermore, the coaching techniques applied to the experimental groups were also maintainable in all aspects of positive emotion, engagement, relationship, meaning, and accomplishment. Although many procedures and techniques for enhancing well-being are recommended by different experts, according to the results of this experiment, we can consider coaching technique as effective methods that can raise self-awareness and adapt the techniques for well-being improvement. Finally, this research is an initial investigation into the improvement of well-being through coaching techniques based on the PERMA model. The coaching workshops in this study not only increased the well-being of the participants but also maintained these levels of well-being and particularly improved the participants' sense of accomplishment. This conclusion is in line with those of prior studies showing that coaching has a favorable influence on psychological traits [80] and helps people enhance their strengths and personal resources [81–83]. This research shows more effective coaching techniques to support those who have mental health problems from digital technology. Therefore, this new research should be made available to benefit others.

5.2. Limitations and Future Directions

The existing coaching literature provides relatively little discussion or research background. According to Schultz, critical assessments of coaching knowledge and understanding are rare and also have some limitations, despite the fact that some intriguing outcomes have been obtained [84]. First, the groups were selected for the experimental condition on purpose rather than at random, as this research concerned mental health conditions and the participants were required to give consent and complete a self-assessment before participating in the experiment. Therefore, the number of participants in the experiment was small. However, prior research has found that small sample sizes might also have an impact on statistical significance [85].

Second, this research only used one well-being measurement, which was Seligman's design, the PERMA model. In the future, research may examine theories other than this model to assess well-being.

Third, this study reported data collected only from digital technology users, whereas future research should be designed to implement and explore the impact of this intervention program in those who have mental health problems from other sectors as well.

Fourth, this study only followed up to a period of six months for the longitudinal experiment. Therefore, future research may allow a longer period to test the effectiveness of well-being sustainability, up to one or two years.

Finally, it would be intriguing to conduct research over a longer length of time in the future, and coaching should be used in other areas on different groups, such as stress reduction, potential empowerment, and aiming to expand the scope of its utilization. Furthermore, we can investigate the structure of the coaching procedure and its factors to establish the sustainable interrelation between coaching and well-being.

6. Conclusions

The purpose of this study was to investigate how group coaching can be used to improve and maintain people's well-being. Based on existing well-being and coaching techniques, as well as empirical research, a coaching technique for well-being was developed and successfully tested over coaching interventions.

Participants in the Experiment group stated that it was a wonderful experience to be able to interact with other participants over the course of the four weeks. A key benefit that the participants derived from their participation in the coaching sessions was the opportunity to discuss and learn from one another's experiences. With such a wide collection of participants, it was very helpful for all participants to hear what others had to say about the same or different problems.

The use of the group as a conduit and recipient of individual and collective influences is a key finding. The model also facilitated positive emotions, engagement, relationships, meaning, accomplishment, control focus, and new perspectives. Furthermore, it helped people to become more self-aware and encouraged action and change with individual and collective accountability. This study emphasizes how coaching can help individuals improve and maintain their well-being. More research and evidence may show that coaching can help individuals, communities, and organizations thrive. Therefore, coaching techniques should be applied to help increase well-being more widely.

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