

Gamified workshops in career choice: Gamification to reduce the lack of personnel in the logistics sector

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Abstract

The logistics sector is challenged by a shortage of skilled personnel. The personnel shortage is triggered by a low attractiveness of the logistics sector, the lack of presence of logistics in education and training as well as demographic changes. This study aims to examine the effects of gamified workshops for people in career choice processes using the social cognitive career theory (SCCT) applied in logistics. Gamified workshops are used to influence the image and the job interest in the logistics sector. A one-group pre-test-post-test study with a standardized questionnaire and a sample of 160 persons was conducted based on the SCCT. The results show that all constructs of the SCCT raised after the gamified workshops, with five out of six constructs showing significant improvements. Thus, we derive those gamified workshops are a suitable treatment to increase attractiveness of sustainable logistics jobs. The high self-efficacy of the respondents indicates that the level of difficulty of occupations in the logistics sector is not perceived as too high and therefore is not perceived as an entry barrier. The positive results speak in favor of continuing the research, with a subsequent longitudinal study, and to test the success of gamified workshops in other sectors with a shortage of skilled workers.

Keywords

Gamification, logistics, sustainable logistics, green jobs, career choice, gamified workshop

1. Introduction

The logistics sector represents a substantial driver of the economy. The transport and storage services sector is responsible for 5% or 599 billion EUR of the total gross value added (GVA) in the EU-27. Furthermore, 5.3% of the total workforce in the EU-27 is employed in the logistics sector [1]. The total logistics market volume in the EU is 878 billion EUR [2] and a third of the research and development investments in the EU is received by the automotive sector and other transport-related businesses [3]. The logistics sector plays not only a major role as employer and creator of value, it secures employment and value creation in further sectors of the economy. Logistics is not only of regional importance, it contributes to the competitiveness of a country and plays a crucial

role in international trade relations. Moreover, developments in logistics have a significant impact on the trade flows of a country [4].

The recent COVID-19 pandemic has highlighted the value of logistics and recalled that daily life depends on effective logistics. Indeed, the pandemic disrupted the logistics sector leading to bottlenecks in the supply of daily products due to delays in deliveries as well as transport prices which are ten times higher than pre-pandemic [5]. Furthermore, global logistics activities cause environmental emissions such as greenhouse gases or noise contributing to the climate change [6, 7]. Reducing the emissions caused by the transport sector is one of the goals of the European Green Deal, as the transport sector is currently responsible for a quarter of the European greenhouse gas emissions [8].

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Despite its importance for the worldwide economy and its potential to save greenhouse gas emissions, the logistics sector suffers of an increasing shortage of staff. Logistics activities are labor-intensive on both operational and managerial levels with the vast majority of jobs continuing to be done by humans [9]. In fact, the logistics performance of companies highly depends on the availability and quality of skilled staff [2, 10]. One of the reasons of the labor shortage in logistics is a lower attractiveness of logistics compared to other sectors [11]. Even though it is a growing, innovative sector with future-proof and lots of green jobs, it remains a challenge for the sector to communicate its attractive jobs and opportunities [2, 11]. The low attractiveness of the logistics sector prevents (young) professionals from applying for jobs [12]. Additionally, recent studies showed that a further reason for the personnel shortage is caused by the lacking presence of logistics in education and the perception of job seekers of earning a low salary [13].

In this paper, we investigate how gamification can be used to attract people to the logistics sector. The concept of gamification means the use of game elements in a non-game context and is used, among other things, to influence people's attitudes and behavior [14, 15]. It has been found that the use of game elements can change the subjective personal attitude towards a subject and minimize the inhibition threshold of using new things [15]. [16] used gamification-based applications to raise participants' interest in science and to promote scientific careers. [17] created gamified workplace simulations to enhance students' motivation and awareness of career opportunities. [18] proposes to associate gamification as a concept with a broad field of application in the context of career guidance [18]. According to [19] gamified career decision-making systems can turn the career selection into an engaging process. Yet, their review found a lack of research on the use of gamification in career choice. Another example for a possible application of gamification in career choice, is an interactive online game to expose students to career options [20].

This study aims to examine the effects of gamified workshops for people in career choice processes using the social cognitive career theory (SCCT) by [21] applied in logistics. In particular, the career choice goals based on peoples' interests, self-efficacy, external barriers and support are investigated.

2. Theory and hypotheses

We use the SCCT following [21] as theoretical background for our study and develop the hypotheses for the pre-post study based on the constructs of SCCT.

SCCT is based on the social cognitive theory of [22], further developed by [23, 24] aiming to explain *'three interrelated aspects of career development: (1) how basic academic and career interests develop, (2) how educational and career choices are made, and (3) how academic and career success is obtained'* [25].

SCCT was chosen as the underlying theory for this empirical study based on the results of [26]. The authors conducted a literature review identifying career choice theories for gamification research providing a theoretical framework to apply career choice theories into the area of gamification. The SCCT was evaluated as the most appropriate theory to investigate the results of gamified workshops about career choice in the area of logistics [25]. Thus, we followed the results of the work done by [26] and selected the SCCT as the underlying theory for the conducted study.

2.1. Social cognitive career theory (SCCT)

SCCT integrates various concepts into a single model including career choice and career development. The main constructs of SCCT are external barriers, external support, self-efficacy, outcome expectations and choice goals [25].

SCCT focuses on three cognitive-person constructs (1) self-efficacy, (2) outcome expectations, and (3) choice goals and evaluates how these three constructs interact with the environmental factors external barriers and external support to predict the choices people make concerning their careers [21]. Whereas external barriers decrease self-efficacy, external support leads to a rise of self-efficacy. Further, self-efficacy increases outcome expectations and vocational interests [23]. The whole SCCT model is illustrated in Figure 1 [21].

The constructs of the SCCT can be described as follows:

- *Self-efficacy* is an individual's beliefs about own capabilities to complete a task or to be skilled for a specific job [25].

- *Outcome expectations* are expected consequences of specific actions and behavior [23]. It means that people chose a particular career path with higher probability if they relate the career path to positive consequences based on their behavior [21].
- *Vocational interests* refer to “patterns of likes, dislikes, and indifferences regarding career-relevant activities and occupations” [23]. It is assumed that vocational interests are the interest of a person in a specific career which lead to a specific career choice goal [23].
- *Choice goals* are the intention of a person to achieve a particular level of performance or to actually perform a certain behavior [25]. Goals allow a person to guide their personal behavior and to maintain the chosen behavior for a long time [23].

To ensure a better understanding of each construct, a table of the items for each construct was included in the Appendix in Table 5. The SCCT model includes environmental factors such as gender, major or average grade and contextual factors e.g., the support system in addition to the main constructs described above. The environmental factors influence the self-efficacy, the outcome expectations, the vocational interest and the choice goals [23, 27]. In this study external barriers and external support are the environmental factors under examination [21].

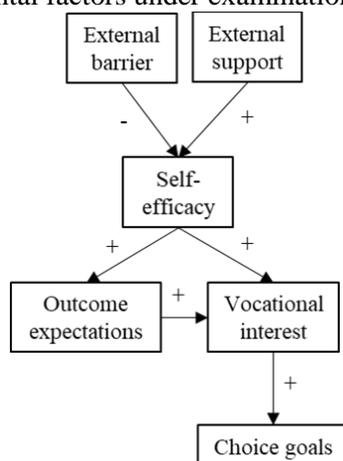


Figure 1: Model of SCCT, following [21]

SCCT describes mechanisms and central, dynamic processes, through which academic and career interests are developed, career-relevant choices are formed and realized, and performance outcomes are accomplished [23]. SCCT focuses on cognitive-person constructs such as self-efficacy and their interaction with environmental

factors to predict the academic and vocational choices of people. In brief, the SCCT model examines the barriers and interest of respondents towards a job. [21] SCCT has been applied to attract people to engineering and computing with different types of people ranging from beginners to advanced [25, 28]. [28] used SCCT to predict interests and choice goals in computing disciplines. They found that external support increased the insistence on pursuing a discipline and indirectly the insistence on completing a discipline is strengthened. [27] focused on career choice in agricultural sciences. They found that environmental factors such as gender, major, average grade do not have a significant impact on career choice processes in agricultural sciences. [21] conducted a study using SCCT to investigate the intention of students to enter the sports and leisure industry. Their results validate the relationship between the constructs of the model as presented above [21]. For the operationalization of the well-approved SCCT model, we developed a questionnaire which can be found in the Appendix in Table 5.

2.2. Hypotheses

The hypotheses are derived based on the literature and the relation of the constructs of the SCCT. The alignment of students educational and occupational aspirations is a clear indicator for their understanding of the labour market. Students whose educational and occupational expectations are misaligned, often underestimate the level of education that is required for their aspired profession [29]. Gamified workshops are one way to inform in an engaging environment and attract people for a certain topic [30]. Previous research has shown that gamification can foster intrinsic motivation [31], increase the enjoyment of learning [32] and increase students’ knowledge retention [30]. [33] conducted a literature review on the functionality of gamification and conclude that gamification achieved various positive effects. In fact, results demonstrated that the success of gamification depends on the users and the context in which it is applied [33].

Following, we assume that gamification leads to positive effects regarding a career in logistics using the SCCT. The hypotheses examine changes from the first measurement point (M1, directly before the gamified workshop) compared with the second measurement point (M2, directly after the gamified workshop). It was tested

whether the respondents' choice goals towards the logistics industry improved after the workshops. It is hypothesised that gamified workshops have a positive impact on the constructs of the SCCT and thus, that the values improve from M1 to M2. The hypotheses for this paper are as follows:

H1: External barriers towards logistics jobs decreased from M1 to M2.

H2: External support in relation to a job in the logistics industry increased from M1 to M2.

H3: Outcome expectations in relation to a job in the logistics sector increased from M1 to M2.

H4: Self-efficacy in relation to a job in the logistics sector increased from M1 to M2.

H5: The interest for a job in the logistics industry increased from M1 to M2.

H6: The intention to apply for a logistics job increased from M1 to M2.

The majority of people who are completing a training with logistics focus chose this training due to an existing interest in the field [34, 35]. We assume that the gamified workshops lead to a higher increase of the SCCT constructs for people without a background in logistics than for people who are already in a logistics training. Therefore, it is investigated if there is a difference between respondents with a logistics focus such as students in a specialized logistics study program and without a logistics focus such as students in general education or career changers without logistics background, leading to H7.

H7: Respondents without logistics education have a higher increase of the values of the constructs from M1 to M2 than respondents with a logistics focus.

3. Method

We studied the effects of gamified workshops with quantitative methods using a non-experimental study. For this study, a one-group-pre-test-post-test-design was used. The research design was chosen based on previous studies which demonstrated the positive effects of gamification in experiments comparing non-gamified and gamified treatments [15, 36, 37]. First, a pre-test measurement (M1) was completed by the participants, then the treatment in form of a gamified workshop took place followed by the post measurement (M2). We did not include a control group following the results of previous studies showing the validity of a pre-post-test design without a control group in gamification research [36–38].

3.1. The gamified condition

Gamification was implemented in gamified workshops applied in the area of logistics. We used gamified workshops as the treatment between M1 and M2. The workshops include the following gamification elements: quick feedback, storytelling, competition, cooperation, ranking, time limits, rewards and clear goals, and a focus on the topic of sustainable logistics including transport. In the gamified workshops, the participants worked together in small teams of three to five people and solve different tasks to collect points. A detailed schedule of the gamified workshop can be found in Table 1. The gamified workshops have been designed and further developed in various funded projects [15]. This paper is intended to examine the effectiveness of done adaptations regarding career choice.

Table 1
Schedule of a gamified workshop

| Gamified workshop | Game elements |
|--|---|
| 09:45 - Measurement | |
| 10:00 1 (M1) | |
| 10:00 - Interactive lecture | Time constraint, storytelling |
| 11:00 - Augmented reality game: Logistify | Time constraint, avatar, storytelling |
| 11:30 - "Career Activity" | Storytelling |
| 12:00 - Interactive lecture, Job apps & gamification | Storytelling, time constraint |
| 13:00 - Dragons' Den: Logistics jobs in future | Storytelling, time constraint |
| 14:00 - Dragons' Den | |
| 14:45 - Closing, award ceremony & Measurement (M2) | |
| 15:00 - Closing, award ceremony & Measurement (M2) | |
| 16:00 - Closing, award ceremony & Measurement (M2) | |
| 16:00 - Closing, award ceremony & Measurement (M2) | |
| 16:30 - Closing, award ceremony & Measurement (M2) | |
| Whole day (in each exercise) | Leaderboard, points, immediate feedback, clear goals, competition & cooperation |

3.2. Data collection

Aiming to evaluate the differences of the interest towards logistics professions before and after a gamified workshop, primary data of the workshop participants was collected using a written questionnaire. We developed a questionnaire based on the SCCT study of Cunningham et al. [21] using the theoretical model and the metrics for measuring the SCCT constructs as a basis. Multi-item scales based on the work of [21], [25, 28], [39] and [40] were used to create the questionnaire. The items for the constructs can be found in the Appendix in Table 5.

The answers of the respondents regarding the items were evaluated using a 7-point Likert scale. We recoded the (partly reverse coded) items to fit with the [1] totally disagree to [7] totally agree. Apart from the demographic characteristics, closed questions were used in the standardized survey. The questionnaire contained several items per construct as defined in the SCCT. For the evaluation of the results, we considered the constructs as a unit using the mean values of the items.

The data collection was conducted during gamified workshops that took place between September 2019 and March 2020 in Austria. A total of 160 people participated in the gamified workshops. The sample of people who participated was drawn among the population who is currently intensively engaged in career choice decisions. The participants include high school and upper school students, university students, as well as people of adult education in the career change process. In the analyses of the data in section 4, the number of the total sample per analysis is sometimes smaller than 160. This results from missing responses in parts of the questionnaires.

3.3. Data analysis

For the data analysis the content of the questionnaires was transferred into a data set to enable the evaluation using a statistical software. Questionnaires of the pre- and posttest measurement that belong together were identified by the unique code consisting of the first name and the month of birth. We used the software SPSS v27 for our data analysis.

The primary data was analyzed using descriptive statistics and inferential statistics was

used to test differential hypotheses. Based on the primary data the distribution of the mean values of the constructs was calculated. Given the scales that were used, the respective sample sizes and the distribution of the data (a Kolmogorov–Smirnov led to skewed distributions), it was decided to use non-parametric tests that make no specific assumptions about the sample parameters. Following the suggestions from [41], Wilcoxon signed-rank tests were used for matched pairs of observations such as between M1 and M2 and Mann–Whitney U test was used for independent samples in the same distribution (e.g. comparisons without or with logistics focus).

This study employed Cronbach’s Alpha and composite reliability to draw conclusions that suit the research context in the best way possible. The analysis results indicated that the satisfactory level of reliability has been met since the Cronbach’s Alpha coefficient and composite reliability values of all variables except the construct external barriers are all larger than 0.7 [42]. External barriers was accepted with a lower alpha of 0.621 following [43] indicating an acceptable internal consistency for research in earlier, exploratory stages such as the underlying study. Thus, the reliability of the used scale generally fits with the scientific standards. Table 5 in the Appendix summarizes Cronbach’s Alpha and composite reliability of the constructs.

4. Results and discussion

In this section, the results of the study are presented and discussed, the defined hypotheses are tested and supported or rejected. Table 2 summarizes the demographic characteristics (1) gender, (2) age, (3) highest educational level and (4) whether respondents are in a training with a logistics focus or without.

Table 2
Demographic characteristics of the respondents (n= 160)

| Category | Characteristics | n |
|----------|-----------------|----------|
| Gender | Male | 67 (42%) |
| | Female | 92 (58%) |
| Age | <19 | 90 (56%) |
| | 20-23 | 27 (17%) |
| | 24-39 | 28 (18%) |
| | 40-55 | 14 (9%) |
| | 56-74 | 1 (1%) |

| | | |
|-------------------|----------------------------|----------|
| Educational level | Vocational school | 14 (9%) |
| | University | 37 (23%) |
| | High school / Upper school | 95 (60%) |
| | Grammar school | 2 (1%) |
| | Other | 10 (6%) |
| | Logistics focus | No |
| Yes | | 49 (31%) |

Table 3 specifies the results for the hypotheses 1-6 including mean value, standard deviation, significance as well as information if the hypotheses was supported or rejected. Five out of six hypotheses were supported. The evaluation of external barriers (H1) has significantly improved from M1 ($\mu = 4.78$) to M2 ($\mu = 5.01$). External support including previous knowledge and personal contacts significantly increased from M1 ($\mu = 4.04$) to M2 ($\mu = 4.29$), leading to support H2. Outcome expectations significantly increased from $\mu = 5.22$ up to $\mu = 5.55$ after the gamified workshops, thus H3 is supported. Self-efficacy (H4) significantly increased from M1 ($\mu = 5.40$) to M2 ($\mu = 5.52$). Vocational interest in the logistics industry significantly increased after the gamified workshop from $\mu = 4.39$ up to $\mu = 4.74$, therefore H5 is supported. The intention to enter the logistics sector (H6), which is referring to choice goals, improved from $\mu = 3.83$ before the gamified workshop up to $\mu = 3.94$ after the gamified workshop without significance.

Table 3
Results for hypotheses 1-6

| Hypotheses | M1 $\mu, (\sigma)$ | M2 $\mu, (\sigma)$ | Significance | Supported/ rejected |
|------------|-----------------------|-----------------------|------------------|------------------------|
| H1 | 4.78 (.98) | 5.01 (.99) | Yes $p < .01$ | supported |
| H2 | 4.04 (1.52) | 4.29 (1.44) | Yes $p < .01$ | supported |
| H3 | 5.22 (1.22) | 5.55 (1.08) | Yes $p < .01$ | supported |
| H4 | 5.40 (1.19) | 5.52 (1.29) | Yes $p < .05$ | supported |
| H5 | 4.39 (2.02) | 4.74 (1.88) | Yes $p < .01$ | supported |
| H6 | 3.83 (.68) | 3.94 (.65) | No $p = .146$ | rejected |

Table 4 summarizes the results for hypothesis 7 which investigates differences between respondents with and without a logistics

background. Respondents without a logistics focus had an increase of the values of all constructs after the gamified workshop.

The results found a positive development for the group of respondents without a logistics focus. Five out of the six constructs had a significant increase between M1 and M2. External support improved by .28 ($p < .01$), external support by .29 ($p < .01$), self-efficacy by .46 ($p = .022$), outcome expectation by .20 ($p < .01$) and vocational interest grew by .46 ($p < .01$) after the gamified workshop. Even if the construct of choice goal climbed up by .13 in M2, the increase was not significant with $p = .139$.

For the respondents who are already in a logistics training, the values suggest mixed results. External barriers could be slightly improved by .07 ($p = .262$), external support rose by .23 ($p = .062$) and vocation interest grew by .07 ($p = .406$). Self-efficacy and choice goals remained stable with an increase of .02 ($p = .789$) and .03 ($p = .821$). Outcome expectation found a little drop by .07 ($p = .971$). None of the results in the group of respondents with a logistics focus are significant. Indeed, out of the 160 respondents, 49 had a training with logistics focus, leading to a lower reliability of the results in particular in this group.

Based on the results of Table 4, we can accept H7 and confirm that the effect of the gamified workshops was higher in the group of people without logistics background than those already in a logistics training.

Table 4
Results for hypothesis 7

| Hypotheses | M1 $\mu, (\sigma)$ | M2 $\mu, (\sigma)$ | Δ M1 to M2 |
|-------------------------|-----------------------|-----------------------|-------------------|
| Logistics focus | | | |
| H1 | 5.04 (1.02) | 5.11 (1.15) | .07 |
| H2 | 5.32 (1.06) | 5.45 (0.92) | .23 |
| H3 | 5.99 (0.82) | 6.01 (0.86) | .02 |
| H4 | 6.12 (0.87) | 6.02 (1.06) | -.10 |
| H5 | 6.17 (1.06) | 6.24 (.90) | .07 |
| H6 | 3.93 (0.64) | 3.96 (0.72) | .03 |
| Without logistics focus | | | |
| H1 | 4.68 (.95) | 4.96 (.92) | .28 |

| | | | |
|----|----------------|----------------|-----|
| H2 | 3.54 (1.38) | 3.83 (1.35) | .29 |
| H3 | 4.91 (1.21) | 5.37 (1.10) | .46 |
| H4 | 5.12 (1.19) | 5.32 (1.33) | .20 |
| H5 | 3.68 (1.87) | 4.14 (1.83) | .46 |
| H6 | 3.79 (0.69) | 3.92 (0.62) | .13 |

Even if respondents who have completed training with a logistics focus have only slightly changed their interest, they realize a higher interest ($\mu = 6.24$) in a job in the logistics industry compared to respondents without logistics focus ($\mu = 4.14$). The intention to enter the logistics sector could only be somewhat improved in M2 for respondents who had completed a training with a logistics focus, leading to a level of choice goals on a similar level compared to respondents without training with a logistics focus ($\mu = 3.96$ vs. $\mu = 3.92$).

The highest increase in the group of respondents in a logistics training was external support with plus .23 after the workshop. In the group of respondents with a logistics focus, the highest increase of .46 was allied to self-efficacy and vocational interest, indicating that the workshop design enhances people's beliefs about their own capabilities to be skilled for the logistics sector.

It is noticeable that the interest in the logistics sector (vocational interest) is assessed with a higher average score ($\mu = 4.74$ vs. $\mu = 3.94$) than the intention to enter the logistics (career choice goals) sector. This was observed in both M1 and M2. Further research could investigate if and why a higher interest leads to lower choice goals.

Self-efficacy is the construct with highly positive evaluations both before and after the workshops. Based on this high self-efficacy, it is concluded that occupations in the logistics sector are not perceived as too difficult for a possible entry.

5. Conclusion

Among other reasons, a low attractiveness and a lack of knowledge regarding (green) job opportunities resulted in a personnel shortage in the logistics sector. This study shows that gamified workshops positively changed peoples' view regarding logistics jobs and could therefore

help to reduce the lack of personnel and attract people to the sector.

For the quantitative survey, we used a pre-post-test study design based on the SCCT of [21] with 160 respondents. The constructs of the SCCT improved after the gamified workshops, with five out of six constructs having a significant increase. The pre- and post-comparison showed that after the gamified workshops, a significant increase could be achieved for five out of six constructs of the SCCT. External support, outcome expectation, self-efficacy, vocational interest significantly increased after the workshops and external barriers such as the fear of being discriminated or not treated equally in the sector significantly decreased.

This study has several limitations leading to ideas for future research. The sample of 160 respondents, partly divided into smaller groups based on demographic characteristics leads to a major room for improvement. Moreover, the calculation of a structural equation model (SEM) for the SCCT should be included in future research. Before conducting an exploratory factor analysis or SEM, the items of the constructs' external barriers, vocational interest and choice goals should be expanded to achieve a higher validity.

Other ideas for future research are that further studies could investigate the effects of the variation of different game elements. In addition to conducting an experiment with the use of a control group, it is also worth considering conducting a longitudinal study. The topic of external barriers is not explicitly addressed in the gamified workshops. It would be of interest to explicitly address external barriers during the workshop and investigate if the workshops helped to further reduce the barriers. Due to the longer period, this can help to deliver more reliable results and reveal changes and developments. In addition, a scientific investigation of gamified workshops regarding their effectiveness in other areas is possible. Due to the positive success in the logistics sector, gamified workshops can also be used in other sectors after adapting the content to the area of application to identify whether they lead to similar results.

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8. Appendix

For the assessment of the questionnaire, we used a 7-point Likert scale ranging from totally disagree (1) to totally agree (7). In addition, we included the demographic statistics (1) gender, (2) school type/education type, (3) logistics focus and (4) age in the survey which are not listed in Table 5.

Table 5
Measurement scales.

| Construct | Items | Source |
|--|--|--------------|
| External barriers (α : 0.621) (CR: 0.634) | (1) It is possible I will be treated differently within the logistics sector because of my demographics (e.g., age, sex, race) | [21, 40] |
| | (2) I anticipate facing discrimination in the logistics sector based on my demographics (e.g., race, sex, age) | |
| | (3) I do not foresee being treated differently in the logistics sector based on my demographic characteristics (e.g., age, sex, race) (reverse scored) | |
| | Within the context of the logistics sector, I feel as if I would... | |
| | (4) ... be promoted quickly (reverse scored), | |
| | (5) ... have a hard time advancing in the profession | |
| External support (α : 0.822) (CR: 0.825) | (1) I have sufficient previous experience to enter the logistics sector | [21, 39] |
| | (2) I have the training to enter the logistics sector | |
| | (3) My educational background has prepared me for a job in the logistics sector. | |
| | (4) I feel as if I have sufficient contacts to help me in entering the logistics sector | |
| | (5) I do not have the contacts to help me earn a job in the logistics sector (reverse scored) | |
| Self-efficacy (α : 0.888) (CR: 0.835) | (1) I have self-assurance that I could earn a position within the logistics sector | [21] |
| | (2) I am capable of learning the skills needed for a job in the logistics sector | |
| | (3) I am confident I could successfully work within the logistics sector | |
| Vocational interest (α : 0.785) (CR: 0.890) | (1) Entering the logistics sector following graduation is something that interests me | [21] |
| | (2) I have no interest working in the logistics sector once I graduate (reverse scored) | |
| Outcome expectations (α : 0.931) (CR: 0.933) | Entering the logistics sector would mean... | [21, 25, 28] |
| | (1) ...satisfaction from being in this profession. | |
| | (2) ... a good salary | |
| | (3) ... get respect from other people | |
| | (4) ... go into a field with high employment demand | |
| Choice goals (α : 0.985) (CR: 0.902) | (1) I intend to enter the logistics sector following graduation | [21] |
| | (2) I intend to work somewhere other than the logistics sector following graduation (reverse scored) | |

α : Cronbach's Alpha

CR: Composite Reliability