

Exploring Motivational Surges Among Tertiary Level L2 Learners: Directed Motivational Currents in Focus

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Abstract

This study adds new empirical evidence on how commonly the Directed Motivational Current (DMC) phenomenon is recognized and experienced among tertiary level L2 learners. This study also investigated DMC manifestations across such demographic factors as gender and domain of study. To this end, in this quantitative study, the Turkish version of the DMC Disposition Scale (Muir, 2016), validated by the researchers through a confirmatory factor analysis and reliability checks, was administered to 1083 first-year EFL students pursuing a bachelor's degree at twelve different faculties of a state university in Turkey. The data were analyzed through chi-square analyses, t-tests, and analyses of variance. Of all participants, 20.8% (n = 224) reported having experienced DMCs either once or on multiple occasions. The responses of the DMC group corroborate previous assertions that DMC is a unique motivational phenomenon experienced by a minority of students rather than being a widely experienced phenomenon. However, when the nature of the context is considered, the number of true-DMCs is promising. Gender and domain of study were not found to affect the propensity to experience DMCs among tertiary level L2 learners. These results are discussed and implications for theory and practice are provided.

Keywords: *Directed Motivational Current, L2 motivation, motivational surge, L2 learners*

The intriguing nature of motivation and its predictive role in second/foreign language (L2) learning achievement have aroused the interest of researchers pursuing a better understanding of this construct in the field of L2 learning. Following Gardner and Lambert's (1959) seminal study on L2 motivation over six decades ago, motivation has been studied from different perspectives, and various models of L2 motivation have been proposed (e.g., Dörnyei, 2005; Dörnyei & Ottó, 1998; Williams & Burden, 1997). Even though motivation was primarily viewed as a stable individual difference (ID) variable, along with the emergence of process-oriented approaches to L2 motivation,

there has been a major shift towards the conceptualization of motivation as a complex and dynamic variable that is difficult to study in isolation (Boo et al., 2015; Dörnyei, 2019; Ushioda, 2016; Waninge et al., 2014). It is now widely agreed that L2 learners exhibit a fluctuating level of motivated behavior in the process of L2 learning (Dörnyei, 2019; Ushioda, 2016), and the importance of this dynamic perspective over the last decade coincides with a growing trend towards investigating the situated nature of L2 motivation (Boo et al., 2015). In parallel with the current movement, Dörnyei and associates (Dörnyei et al., 2015; Henry et al., 2015; Muir & Dörnyei, 2013) have pioneered the introduction of a new phenomenon termed Directed Motivational Currents over the past decade.

The term Directed Motivational Currents (DMC) refers to an extended period of intense motivational endeavor both in pursuit of and heightened by a specific goal (Dörnyei et al., 2014). Dörnyei, Muir, and Ibrahim (2014) introduced the concept of DMC based on their own experiences and in recognition of similar ones in people around them. According to their accounts, a DMC functions as an “injection of motivation into the system” (Dörnyei et al., 2014, p. 12) and represents a powerful motivational drive supporting and energizing long-term behavior such as learning an L2. “Directed” suggests motivational engagement which is always channelled towards a specific goal; “motivational” describes the intense motivational involvement; and “current” signifies the strong motivational confluence that appears once a learner has experienced a DMC, which seems akin to a strong current in the ocean like the Gulf Stream (İbrahim, 2016). By virtue of DMC’s “self-propelling nature” (Dörnyei et al. 2014, p. 11), L2 learners get caught in a powerful motivational flow, which transports them closer to their idealized goals.

As a DMC can be noticed in individuals pursuing goal-oriented efforts (e.g., losing weight) (Dörnyei et al., 2014), it can readily be recognized in an educational setting. Some examples provided in the related literature include a tertiary level student completing his or her thesis (Muir & Dörnyei, 2013); a student who endeavors to pass a university entrance examination (Ghanizadeh & Jahedizadeh, 2017); and a group of students’ intense preparation for a drama performance (Dörnyei et al., 2015). Within the field of L2 learning, an example might be an individual who has been deeply involved in learning the L2 in pursuit of preparation for an extended foreign trip. She might imagine that trip at night and cannot stop herself from speaking the L2. Then, this desired vision constitutes a crucial part of her life (Dörnyei et al., 2015). Each of the aforementioned examples portrays an intense motivational surge, which significantly affects individuals and is easily observed by even nearby people over time (Safdari & Maftoon, 2017). To put it differently, individuals with DMC exert effort in a way that is not normally expected from them and accomplish more than they ever imagined they could (Dörnyei et al., 2014).

Surprisingly, such a crucial aspect of human motivation that is immediately noticeable in people from all walks of life, has not been recognized by motivation researchers for many years (Muir, 2016). Although the notion of DMC was proposed by Dörnyei, Muir, and Ibrahim (2014) nearly a decade ago, it has received scant attention in the research literature. The existing body of research on DMCs has focused primarily on analyzing the micro-level theoretical properties and components of the construct (Dörnyei et al., 2014, 2015, 2016; Ibrahim, 2016; Muir & Dörnyei, 2013). So far, there have been few empirical investigations into DMC within the realm of L2 learning (e.g., Ibrahim & Al-Hoorie, 2018; Safdari & Maftoon, 2017; Sak, 2019). Previous studies on the subject have yet to address the issue of how DMC-type motivation can be fostered in language classrooms. Given that DMCs and their accompanying long-term motivated behavior have potential pedagogical value, more empirical investigations are required to validate its theoretical tenets. Moreover, with some notable exceptions (Ghanizadeh & Jahedizadeh, 2017; Muir, 2016), few quantitative accounts of L2 learners’ DMC orientations in the process of L2 learning have appeared.

Therefore, there is still much room to further understanding of L2 learners' intense motivational surges in various contexts with different learners. Furthermore, in the present Turkish context, no study has been conducted to understand how commonly DMCs are experienced and recognized. The Turkish version of the DMC Disposition Scale (DDS) (Muir, 2016) has also not been validated so far. Thus, many questions remain unanswered regarding how common the DMCs phenomenon is among different learners, in different settings, or among different group constellations.

With these concerns in mind, the objective of the current study is to mark the first step towards validating the Turkish version of the DDS empirically, investigating how commonly the DMC phenomenon is recognized and experienced among Turkish L2 learners at the tertiary level, and examining DMC manifestations across such demographic factors as gender and domain of study. The present study aims to fill a current empirical need and the results will contribute to better understanding DMC experiences identified among different learners in a relatively novel context.

Theoretical Background

The Major Components of DMC

Although each unique DMC experience is affected by contextual factors and varies in form, duration and even intensity of the surge (Henry et al., 2015), all DMCs consist of some core characteristics without which they may not be called a DMC (Ibrahim, 2016). These major components are threefold: goal/vision orientedness, a salient facilitative structure, and positive emotionality (Dörnyei et al., 2014).

Goal/vision orientedness. The most striking characteristic of a DMC is its directional nature (Dörnyei et al., 2014). DMCs are directed towards a clear ultimate goal such as being a proficient L2 learner and user. Thus, having a well-defined goal is a prerequisite for the initiation of a DMC, and sustaining the motivational current flowing over longer time-frames (Muir & Dörnyei, 2013). According to Dörnyei, Muir, and Ibrahim (2014), this feature of directionality distinguishes a DMC from other motivation-related experiences such as hobbies which are practiced for the sake of enjoyment rather than being connected with any stated objective. Another element of this directionality is the notion of vision defined as a goal which is enriched by the addition of the imagined reality of goal experience (Dörnyei & Chan, 2013). For example, for an L2 learner with a DMC, the future-oriented mental picture of using the target language in communication with other people becomes part of the person they are. Accordingly, the intensity of a DMC cannot be attained unless a clearly defined ultimate goal is accompanied by a mental image of its accomplishment (Dörnyei et al., 2014).

Salient facilitative structure. A DMC is also characterized by a noticeable facilitative structure, which serves as a route map that identifies the pathway leading to final goal attainment. It is argued that there should be a close match between the targeted goal or vision and a sufficiently tailored pathway for a successful DMC journey (Dörnyei et al., 2014, 2016). This pathway encompasses three essential features: a recognizable start/end point, behavioral routines, and regular progress checks. Dörnyei, Ibrahim, and Muir (2015) suggest that a DMC is consciously initiated by something specific rather than just drifting into being. In other words, there is a conscious moment when the individual forms a clear future vision of the goal. Furthermore, a DMC is consciously turned off, either suddenly or slowly while moving closer to the goal (Henry et al., 2015). Individuals experiencing a DMC are also engaged in pursuing some regularly recurring activities with no specific volitional control (Muir & Dörnyei, 2013). As in the case of an L2 learner who learns ten new words each day, these behavioral routines generate a kind of "motivational autopilot" (Dörnyei et al., 2015, p. 100). The last component of the facilitative structure is the existence of regular progress checks (Muir & Dörnyei, 2013). In an attempt to accomplish the sub-goals that

they have set for themselves, learners regularly check their progress. These sub-goals function as sources of positive feedback and incentives for learners to sustain the flow of directed energy (Dörnyei et al., 2015).

Positive emotionality. Individuals with a DMC generally experience supportive and positive feelings. In other words, a DMC is accompanied by *positive emotionality*, which represents the pleasure experienced while doing activities identified as moving the individual closer to their ultimate goal (Henry et al., 2015). As noted by Dörnyei, Henry, and Muir (2016), accomplished subgoals generate positive and favorable emotion, which leads to additional energy and pushes the motivational momentum towards a clear finishing line. However, this emotional loading of a DMC differs from the intrinsic enjoyment of being involved in a joyful activity in that the enjoyment is connected not so much with the pleasantness of the activity itself but to the pleasure of goal achievement (Dörnyei et al., 2014). Even if the performance of the tasks and activities may seem unpleasant and tedious, the overall emotional loading of the target vision affects all activities and steps related to the superordinate goal (Henry et al., 2015; Murphy, 2011). This situation may be the reason why positive emotionality, which is at the heart of the DMC, is significantly associated with the concept of eudemonic well-being. Eudemonic well-being describes “quality of life derived from the development of a person’s best potentials and their application in the fulfillment of personally expressive, self-concordant goals” (Waterman et al., 2010, p. 41).

Relevant Underlying Theories of DMCs

The fact that the DMC is a relatively new theoretical construct does not necessarily mean that aspects of the construct have not been discussed in both psychology and the L2 motivation literature. In fact, clear connections exist between the basic tenets of DMCs and some mainstream motivation theories. For example, similar to *goal setting theory* (Locke & Latham, 1990), which suggests that action is based on the goals that individuals establish for themselves, the existence of a well-defined goal is necessary for a DMC to occur. The intense prolonged motivation is fueled by highly valued goals that also influence the whole DMC experience.

Self-determination theory (Deci & Ryan, 1985) is another theoretical strand related to DMCs. The theory is based on the premise that there is a close relationship between motivation and autonomy, which is only one aspect of this theory. This is further highlighted by Ushioda (1998) who states, “autonomous learners are by definition motivated learners” (p. 12). Likewise, the launch of DMCs is possible only when a learner takes full ownership of the goal/vision. However, the DMC framework differs from self-determination theory in that an individual pursues the desired goal primarily without volitional control in a DMC.

DMCs also have some features akin to those of *flow theory* (Csikszentmihalyi, 1990). Both flow and DMC experiences are described as a motivational surge for a period of time and characterized by full engagement, high interest, clear feedback and goal-orientedness. Nevertheless, while flow is primarily related to absorption in short-term, single tasks, a DMC is “a prolonged process of engagement in a series of tasks” (Dörnyei et al., 2015, p. 5). Moreover, the pleasure experienced in DMCs is not restricted to the activity by itself and can result from the awareness that an individual is approaching the end state.

Vision, too, constitutes a fundamental part of the DMC framework (Dörnyei et al., 2014). Defined as “the mental representation of the sensory experience of a future goal state” (Muir & Dörnyei, 2013, p. 357), the vision has a key role in providing a considerable motivational energy and sustaining the motivation throughout a DMC experience. It can be regarded as the D of DMC, providing both directions and focus to motivational endeavors (Muir & Dörnyei, 2013). Additionally, Dörnyei’s (2005) L2 Motivational Self System bears relevance to the DMC construct

since it characterizes the ideal L2 self as one of the strongest motivators of the L2 learning process. DMC is also linked to a personalized goal with vivid visionary features which, for an L2 learner, takes the form of a strong ideal L2 self, namely, the ideal state that the learner would like to become in the future (Henry et al., 2015).

Lastly, the notion of *perceived behavioral control*, a major component of Ajzen's (1988) *theory of planned behavior*, has a central importance in gaining a better understanding of DMCs in that it is concerned with an individual's belief that they have the ability to achieve their goal as it lies within their means to achieve a desired outcome (Dörnyei et al., 2015). One must believe that there are no hindering factors beyond their control so as to be highly motivated. This is congruent with the argument that people cannot experience a DMC unless they consider that they have strong control over how things progress (Dörnyei et al., 2014).

Relevant Studies on DMC

Previous studies on DMC, although scant in number, have focused primarily on examining the micro-level properties of the construct (e.g., Dörnyei et al., 2014, 2015, 2016; Ibrahim, 2016; Muir & Dörnyei, 2013). To date, there have been few empirical investigations into this novel and potentially far-reaching theoretical construct. Drawing on the assumption that the DMC framework lacks empirical grounding, Henry, Davydenko, and Dörnyei (2015) conducted the first empirical examination of the DMC among migrant learners of Swedish as a second language and found that participants' motivated behavior was characterized by goal orientedness, salient facilitative structure, and positive emotionality. Providing qualitative accounts of the DMC experiences of highly motivated pre-service Iranian EFL teachers, the study of Zarrinabadi and Tavakoli (2016) revealed that all the hallmark features of DMC were detected among the participants. Likewise, the findings of Safdari and Maftoon's (2017) qualitative case study confirmed the DMC's proposed structure. In this study, in which semi-structured interview sessions were carried out with a 33-year-old Iranian Persian-speaking woman, the well-defined goal and clear vision were observed in her behaviour and could explain her endless energy. Therefore, directionality and goal-orientedness were identified as the most significant elements in the DMC experience. Research by Selçuk and Erten (2017), which was conducted with first-year tertiary level EFL learners selected by the use of retrodictive qualitative modelling in the Turkish EFL context, demonstrated that vision-led goals exerted a positive impact on the overall motivational performance of the learners, and this is similar to the findings of Ibrahim's (2017) study. In a more recent study conducted by Sak (2019), two focal EFL learners who are experiencing an identifiable DMC and currently studying at TED University English prep school in Turkey take part in a series of four semi-structured interviews. The findings of qualitative content analysis and thematic analysis have shown that DMC experience is differentially augmented and decreased by various micro-level factors in the L2 classroom such as classroom atmosphere and exam pressure.

Another line of research on DMCs is centered on the pedagogical practices of generating DMCs. Watkins (2016), who aimed to investigate whether it is possible to launch learners' motivational currents through planning a curriculum focused on the core characteristics of the DMC, found that the curriculum was effective and successful. In another study conducted by Ibrahim and Al-Hoorie (2018), it was reported that building a group identity, considering the project as personally important, and providing learners with the opportunity to experience autonomy are among the most important parameters for increasing the motivational power of DMC through group projects.

The first research study that also revolved around quantitative accounts of learners' DMC orientations is Muir's (2016) Ph.D. dissertation, which is composed of two complementary studies. In one of these, the online DMC Disposition Scale was developed by the researcher and

administered to learners across various contexts and several continents. The aim was to determine the recognizability of DMCs through a quantitative approach. The data collection instrument consisted of basic questions about whether individuals have either experienced or recognized periods of DMC, what inspired those individuals, the duration of their DMC experiences, in addition to such demographic factors as gender, age, and nationality. The study showed that DMCs varied with contextual factors. Thus, the claim that DMCs exist across a variety of language levels and various contexts was supported in the study. No significant difference was found in learners' DMCs in terms of gender, age, or nationality.

Similarly, using the same scale to examine Iranian EFL learners' DMC orientations and to investigate the relationship between DMCs and learner's proficiency and education levels, Ghanizadeh and Jahedizadeh (2017) found that BA and MA students had a greater tendency to experience DMC in comparison to those with a lower level of educational attainment. Moreover, a significant difference was reported between elementary and upper-intermediate proficiency levels of learners with respect to DMC: those with upper-intermediate proficiency levels had higher levels of DMC. The limited number of studies on this issue shows that DMCs remain relatively underexplored in L2 language learning (Muir, 2020). To the best of our knowledge, the DDS has also not been used, translated, or tested for validity and reliability in the Turkish context. This study aims to address the gap in this regard.

The Present Study

The primary objective of this study was to validate the Turkish version of the DMC Disposition Scale (DDS). Doing so will allow it to be used for future research in this context. The second objective was to investigate how commonly the DMC phenomenon is recognized and experienced among tertiary-level first-year L2 learners in Turkey. The study also aims to examine DMCs across such demographic factors as gender and domain of study. It is expected that this study will contribute to understanding whether intense goal-oriented motivation can exist in an L2 educational context like Turkey, in which only three hours of compulsory L2 English classes are routinely provided. Thus, this study was intended to provide a baseline and pave the way for understanding Turkish L2 learners' DMCs. Specifically, we asked the following research questions:

RQ1. Is the Turkish version of the DMC scale a valid and reliable tool in the Turkish context?

RQ2: How commonly is the DMC phenomenon recognized and experienced among first-year university students?

RQ3. Is there any significant difference in learners' DMCs in terms of gender?

RQ4. Is there any significant difference in learners' DMCs in terms of domain of study?

Method

Setting and Participants

The first draft of the DDS after we translated and back-translated this instrument was administered to sample 1 to validate the instrument by implementing a confirmatory factor analysis (CFA). This sample consisted of 258 students of L2 English (162 females, 96 males) from two different departments (i.e., Mathematics Education and English Language and Literature) at a state university in Turkey.

The final draft of the Turkish version of the DDS was administered to research sample 2, which comprised 1083 first-year tertiary-level L2 students at the same university. The participants were selected using a convenience sampling method among L2 English learners currently pursuing a

bachelor's degree at twelve different faculties of a state university in Turkey. We selected this sample due to one underlying aim of the present study which was to investigate how commonly DMCs are experienced in instructed settings in which little exposure to a target language is provided. This is combined with the fact that the first-year students at the tertiary level seem to be characterized by strong motivational fluctuations. Thus, exploring how commonly first-year L2 learners experience DMCs even in such a context would provide crucial insight to understanding the characteristic of DMC experiences. A total of six responses at the outset were identified as unreliable and discarded due to a lack of care on the part of the participants. The profile of participants is shown in Table 1.

Table 1. Descriptive Statistics for Participants' Domain of Studies

	<i>n</i>	%
Faculty of Education	327	30.4%
Faculty of Science and Letters	245	22.7%
Faculty of Economics and Administrative Sciences	234	21.7%
Faculty of Engineering	102	9.5%
Medical Faculty	50	4.6%
Faculty of Pharmacy	44	4.1%
Faculty of Islamic Sciences	24	2.2%
Faculty of Dentistry	16	1.5%
Faculty of Fine Arts	20	1.9%
Faculty of Health Sciences	8	0.7%
Faculty of Tourism	7	0.6%

Note. *N* = 1077

The ages of the participants ranged from 17 to 50 years old. Female participants outnumbered male ones. Table 2 below shows the ages and gender of the participants.

Table 2. Descriptive Statistics for Age and Gender of all Participants

	<i>n</i>	%
17 years and below	6	0.6%
18-21 years	938	87.1%
22-30 years	122	11.3%
31-40 years	10	0.9%
41-50 years	1	0.1%
Female	663	61.6%
Male	414	38.4%

Instruments

The DDS, which was designed and validated by Muir (2016), was utilized in the present study. The DDS is an online scale comprising three main sections. It includes a number of questions and items

to assess DMC phenomena using a 5-point Likert type response (1 = completely disagree; 5 = completely agree). The DDS was translated into Turkish and, for consistency between the original (in English) and Turkish versions of the DMC Disposition Scale, both translation and back translation methods were employed (Brislin, 1980). Equivalence between the English and Turkish versions was checked at both levels. Eight bilingual expert raters with a Ph.D. degree in the field were invited to rate the match between the original and Turkish versions on a scale of 1-10 (1 = not related at all; 10 = 100% synonymous). Şireci and Berberoğlu (2000) stated that the problem of item translation difference is reduced by obtaining replies of bilingual raters on both the original and translated versions of the items on the scale. Responses from the bilingual raters indicated a high level of semantic correspondence (a mean score of 9.2/10) between the English and Turkish versions. Thus, it appears that the Turkish version sufficiently represented the content of the scale items of the DDS of Muir (2016). The instrument was piloted with 30 participants to check its clarity and all of the participants indicated that the statements on the scale were clear. The data of these participants were not included in the data of the current study. The open-ended questions in the original DDS were also eliminated from the Turkish version.

Data Collection and Analysis

The DDS was administered online for ease of use and data collection. The first-year L2 students studying at different faculties of the university were asked to visit the web address of the questionnaire that includes the scale. The online administration and data collection procedure were self-explanatory and did not necessitate any further explanation by the researchers. Ethics committee approval (approval no. 35853172/433-2832) was obtained from the university. Respondents were all asked to complete an online informed consent form and were assured that their responses would be kept anonymous. Also, demographic information such as age, gender, and domain of study was collected through the questionnaire.

Data analysis was carried out using SPSS 22, Mplus 7.0, and Factor Analysis Version 11.02.04. In line with the aims of the study and the nature of the research sample, the analysis focused on the validation of the Turkish version of the DDS via a confirmatory factor analysis (CFA), reliability checks, and the compilation of detailed descriptive statistics. These were used to investigate how widely DMCs are recognized and experienced and to describe the occurrence patterns of DMCs across different faculties and subsamples. Thus, the analysis also relied heavily on standard statistical procedures such as chi-square analyses, *t*-tests, and analyses of variance (ANOVA).

Results

The Validation of the Turkish Version of the DMC Disposition Scale

A total of 258 participants for the first phase of the statistical analysis were asked to fill in the Turkish version of the DDS. In an attempt to find an answer to the first research question and determine whether the Turkish version of the DMC scale is a valid and reliable tool in the Turkish context, confirmatory factor analysis and reliability analyses were conducted. A CFA was implemented to the data-set collected from sample 1 to confirm the factor structure of the Turkish version of the DDS found in the original version and check the reliability of the Turkish version. Through CFA procedures on Mplus 7.0, construct validity of the Turkish version DDS was tested. In order to investigate the construct validity of the scale, the assumptions of the analysis were examined before CFA was performed. First of all, the data set was examined in terms of missing data, and it was observed that there was no missing data in the data set. The existence of multivariable extreme values was evaluated by calculating Mahalanobis distances. From the 258 data in the sample, no data was deleted, and a data set of 258 participants was obtained for CFA.

In order to determine whether the data provided the assumption of multivariate normal distribution, Mardia's (1970) multivariate kurtosis value was examined, and it was observed that the data did satisfy the multivariate normal distribution condition.

Since the data has five categories, the polychoric correlation matrix was used. Unweighted Least Squares Mean and Variance Adjusted (ULSMV) method, which is strong against the violation of multivariate normal distribution assumption, was used as the estimation method. The model compromised one facet, as in the original version. In the present study, the factor structure established by Muir (2016) was tested. To evaluate the model fit, various fit indices are used. It is expected that these fit indices regarding whether the model will be expected or not are within various limit values (Şimşek, 2007). The most crucial of these is chi-square (χ^2). The ratio obtained by dividing the chi-square by the degrees of freedom (χ^2/df) between $2 \leq (\chi^2/df) \leq 3$ is considered as an acceptable fit (Sümer, 2000). Root-Mean-Squared Error of Approximation (RMSEA) value, which is equal to or less than 0.05, means a good fit; acceptable fit values of RMSEA are between 0.08 and 0.10; and a value greater than 0.10 indicates a poor fit (Hayduk, 1987). Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) goodness of fit indices take values between 0 and 1, and the proximity of these values to 1 indicates that the fit model is better (Hair et al., 1995). Goodness of fit values of the model established in CFA for the Turkish version of the scale with one dimensional structure consisting of 10 items, $\chi^2/df = 2.49$, $p < 0.05$; $df = 35$; RMSEA = .076; CFI = .97 and TLI = .96.

When the values of the fit indices are examined, it can be said that the established measurement model fit is compatible with the original model established in Muir (2016). The values show that the model fit is an acceptable fit. All fit statistics of the model are within acceptable limits, thus achieving a good fit. In factor analysis, factor loadings are expected to be greater than .50 (Chin, 1998; Hair et al., 2010). Factor loadings of all items of the scale were also within adequate limits, with the exception of M8 (.43) which was borderline. When dropping item M8, model fit indices were calculated through CFA. However, all fit statistics of the model were found not to be outside of acceptable limits. Without subtracting any item from the scale, a one-dimensional structure was accepted similar to the original scale. As a result, the Turkish version of the DDS has been found to be a valid tool in investigating DMCs. The model for the scale is presented in Figure 1.

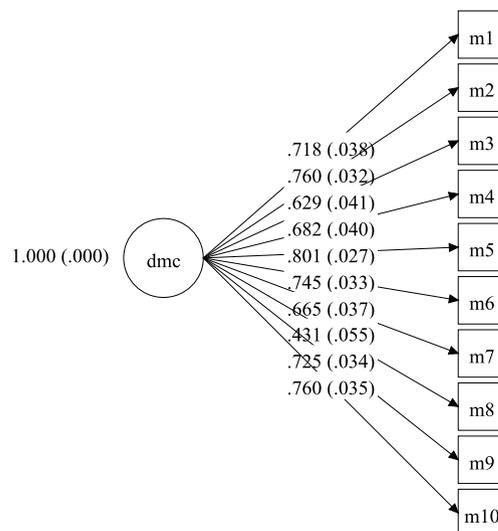


Figure 1. Confirmatory Factor Analysis Model for DDS

Reliability analysis. For the reliability analysis of the Turkish version of the scale, McDonald's omega was calculated through the use of Factor software. McDonald's omega coefficient of the entire scale was .83 ($n = 258$). The Cronbach's alpha of .85 also demonstrated that the scale had strong internal consistency. Accordingly, the reliability of this measurement tool is high (Cohen et al., 2013; Kalaycı, 2014). As the above results of the validity and reliability analyses carried out on the data obtained from the Turkish version of the scale show, the Turkish version of DDS is a meaningful tool for further DMC research in the Turkish context.

Identification of DMCs in the Dataset

To describe the type of intense motivation characteristic of DMCs, the participants of the study were provided with five bullet points, each of which described a key identifying feature of DMC construct. This description at the beginning of the questionnaire comprised statements specifically highlighting those aspects that helped participants distinguish DMCs from general long-term motivation (LTM) in a clear way. These five bullet points were crucial to ensure a common baseline among all respondents in terms of the respondents' self-appraisals of DMCs. After having read this description section, the respondents were asked to indicate whether they recognized this type of intense motivation ($M = 3.25$, $SD = 1.09$, $n = 1077$), then whether they had personally experienced this type of intense motivation while doing a project or striving for a goal ($M = 3.13$, $SD = 1.25$, $n = 1077$), and also whether they had personally experienced this type of intense motivation while learning L2 English ($M = 2.60$, $SD = 1.22$, $n = 1077$), and lastly whether they had personally experienced this type of intense motivation while learning L2 English at the university ($M = 2.63$, $SD = 1.21$, $n = 1077$).

Our analysis of the data revealed that nearly half of the whole research sample (44.7%; $n = 481$) reported recognizing this type of motivation. A similarly high proportion (45.3%; $n = 488$) reported having experienced DMCs while doing a project or striving for a goal. Out of 1077 respondents, 289 (26.8%) of them reported having experienced DMCs while learning L2 English. Of all the respondents, 266 (24.7%) reported having experienced DMCs while learning L2 English at the university. In order to determine how many respondents within the current data-set actually experienced DMCs we undertook further detailed analyses.

Identification of true DMC experiences. The first step of the analysis (i.e., to isolate a true DMC group within the current data-set) was intended to investigate whether learners' appraisals of experience matched the levels of positive emotionality and motivational intensity proposed within the DMC literature. To accomplish this, the respondents were asked to indicate whether their experience was at a similar or less intense level and whether they had experienced it once, or several times (see Table 5 for the results).

Table 3. The Number and Level of Intensity of the DMC Experiences

	Never	Once, less intense	Several times, less intense	Once, similar intensity	Several times, similar intensity
Number	293 (27.2 %)	303 (28.1%)	257 (23.9%)	110 (10.2%)	114 (10.6%)
Total	293 (27.2 %)	560 (52%)		224 (20.8%)	

The data show that DMCs are a relatively common phenomenon and also recognizable among the first-year university students. This was also supported by the result that only 27.2 % ($n = 293$) of the research sample reported having never experienced this type of intense motivation. As can be seen from Table 3, the inclusion of a "less intense" option drew respondents away from marking

that they had never experienced it. In order to identify true DMC experiences, respondents who reported a similar level of intensity highlighted in the five bullet points were selected for inclusion in the DMC group ($n = 224$). The ones who responded that their experience was a not quite as intense level were marked for a more generalized form of LTM ($n = 560$).

Self-reported levels of motivational intensity. The respondents' self-appraisal levels of the motivational intensity they felt during their learning experience was used to justify the inclusion of true DMC experiences. Respondents were asked to indicate their motivational intensity levels on a 5-point Likert scale (1 = not very intense; 5 = very intense). To compare the intensity scores of the LTM group ($n = 560$) and the DMC group ($n = 224$), an independent samples t -test was conducted. A significant difference was found in scores between the former ($M = 3.15, SD = .95$) and the latter ($M = 4.28, SD = .65$), $t(784) = 11.9, p < .001$, and the effect size was large ($d = 1.38$; Pallant, 2010). This figure thus supports the accuracy of the isolation of the responses as to the LTM group, and the DMC group as the data analysis indicated that the motivational intensity levels of the DMC group are significantly higher than the motivational intensity levels of the LTM group.

Further refining of the DMC group. To form the final true DMC group, respondents were asked to indicate on the questionnaire whether they would like to experience DMC again in the future. This question was asked as people who have been caught up in DMCs tend to report readily wanting to experience it due to the heightened levels of eudaimonic well-being and satisfaction accompanying DMC. This acts as a distinguishing feature of the DMC phenomenon. A chi-square test for independence (see Table 4) was carried out to examine the relationship between the groups to which respondents had been assigned (the DMC group or the LTM group) and their response with regards whether they desired to repeat the experience. The relation between these variables was significant, $\chi^2(1, n = 784) = 111.66, p < .001$. The expected frequencies revealed that in the DMC group the number of yes responses was higher than expected, while the opposite was true of the LTM group. Assuming that the DMC group is truly representative of DMC experiences, this clear tendency is to be expected. After removing the 60 respondents who reported an experience of a similar level of intensity but who did not want to experience it again, the final true DMC group was formed for subsequent analysis in the present study. This final DMC group comprised 164 of the original 1077 respondents, 15.22 % of the whole research sample.

Table 4. Chi Square Analysis for “Level of Motivational Intensity” x “Wanting to Repeat the Experience”

			Do you want to repeat the DMC experience?		Total
			Yes	No	
Level of intensity	similar intensity	count	164	60	224
		expected count	97.7	126.3	224.0
	not quite as intense	count	178	382	560
		expected count	244.3	315.7	560.0
Total	count	342	442	784	
	expected count	342.0	442.0	784.0	

Investigating the DMC Group

To compare scores on the DDS between the LTM group and the DMC group, an independent samples t -test was carried out. A significant difference between the scores for the DMC group ($M = 4.26, SD = .37$) and the general LTM group ($M = 3.53, SD = .59$), $t(784) = 22.8, p < .001$ was found, with the magnitude of the difference reaching a reasonably large effect size ($d = 1.48$), thereby validating the choice to separate the DMC group from the LTM group. These two groups

were further split in half to show whether the respondents reported this experience once or several times (see Table 5 for the descriptive statistics of these four groups). A one-way analysis of variance found a significant difference in the DMC Disposition scores between the groups, $F(3, 780) = 107.13, p < .001$, with a medium effect size (eta squared = .49). Student-Newman-Keuls (S-N-K) post hoc analysis showed that each of the groups differed significantly from the others ($p < .05$), with the sequence of means following the expected order, in the sense that “several” times was higher than “once” and “similar intensity” was higher than “not quite as intense.”

Table 5. Descriptive Statistics for all Respondents’ Scores on the DMC Disposition Scale

	<i>n</i>	<i>M</i>	<i>SD</i>
Once, not quite as intense	303	3.40	.57
Several times, not quite as intense	257	3.56	.59
Once, a similar level of intensity	110	4.12	.36
Several times, a similar level of intensity	114	4.29	.38

The effect of gender and domain of study on responses on the DMC scale. The aim of the third research question was to compare the responses of males and females on the DDS, both in the LTM group and the DMC group, an independent-samples *t*-test was conducted. In the DMC group, the scores of females ($M = 4.26, SD = .35$) and males ($M = 4.26, SD = .38$), $t(164) = .658, p = .41$, indicated no significant difference. This non-significant result was also found when comparing males ($M = 3.55, SD = .60$) and females ($M = 3.51, SD = .58$) in the general long-term motivation group, $t(620) = .21, p = .88$. This result provides evidence that, in this context, DMCs are experienced and appraised in the same way by both sexes.

As for the fourth research question of the study, comparing the responses of the participants within the LTM group studying at the twelve different faculties gave a very clear picture. A one-way analysis of variance showed no significant difference in attitudes on the DMC Disposition scale among the twelve faculty groups, $F(11, 608) = 1.28, p = .23$ (see Table 6 for descriptive statistics).

Table 6. Descriptive Statistics of Participants’ Responses in the LTM Group for all Faculty Groups

	<i>n</i>	<i>M</i>	<i>SD</i>
State Conservatory	2	3.33	.35
Faculty of Dentistry	5	3.73	.56
Faculty of Pharmacy	27	3.45	.62
Faculty of Education	186	3.52	.55
Faculty of Science and Letters	152	3.60	.58
Medical Faculty	34	3.41	.71
Faculty of Fine Arts	5	3.48	.16
Faculty of Economics and Administrative sciences	135	3.45	.68
Faculty of Islamic Sciences	14	3.42	.47
Faculty of Engineering	50	3.63	.48
Faculty of Tourism	5	3.86	.57

In comparing responses of the participants within the DMC group among the different faculties, a one-way analysis of variance showed no significant differences, $F(8, 155) = 1.69, p = .1$ (see Table 7 for descriptive statistics).

Table 7. Descriptive Statistics of Participants' Responses in the DMC Group for all Faculty Groups

	<i>n</i>	<i>M</i>	<i>SD</i>
Faculty of Dentistry	2	4.00	.23
Faculty of Pharmacy	11	4.09	.53
Faculty of Education	47	4.24	.35
Faculty of Science and Letters	34	4.35	.38
Medical Faculty	9	4.51	.39
Faculty of Economics and Administrative sciences	35	4.21	.31
Faculty of Engineering	5	4.46	.43
Faculty of Islamic Sciences	18	4.21	.30
Faculty of Tourism	3	4.47	.29

Comparing the lengths of the experiences reported by the LTM and the DMC groups. To compare the duration of each period of intense motivation, a chi-square test was carried out. A significant relationship was found between the type of experience an individual reported (i.e., between the LTM group and the DMC group) and the duration of this experience, $\chi^2(4, 784) = 184.09, p < .001$.

As can be seen in Table 8, more participants than expected reported longer experiences, and fewer participants than expected reported shorter experiences within the DMC group. The inverse is true of the general LTM group. This result is in line with the characteristics of a true DMC group when the intensity of directed motivational energy of a DMC is considered.

Table 8. Chi-square Analysis Comparing the DMC and LTM Groups x Duration of the Experience

		Less than 1 month	1-2 months	2-4 months	4-6 months	Longer than 6	Total
DMC Group	count	0	4	13	59	88	164
	expected count	44.8	29.5	17.6	29.1	43.1	164.0
Long-term motivation group	count	214	137	71	80	118	620
	expected count	169.2	111.5	66.4	109.9	162.9	620.0
Total	count	214	141	84	139	206	784
	expected count	214.0	147.0	84.0	139.0	206.0	784.0

A one-way analysis of variance was conducted to examine how long participants' experiences lasted and the reported level of intensity of these experiences. In running this analysis first with the DMC group, the results revealed that there was no significant difference in the intensity scores of individuals in the DMC group whose experiences lasted different durations, $F(3, 160) = 1.83, p = .14$, (for descriptive statistics see Table 9). There was no significant difference between participants whose experience lasted from four-six and longer than six months. Moreover, the intensity scores of individuals whose experience lasted from four-six months were significantly

different from those whose experience lasted from one-two months. Furthermore, the intensity scores of individuals whose experience lasted from two-four months were significantly different from individuals in the two groups whose experiences lasted from one to two months and four to six months. Thus, a clear pattern for the DMC group is harder to discern when we look at these results.

Table 9. Reported DMC Durations of the DMC Group

	<i>n</i>	<i>M</i>	<i>SD</i>
1-2 months	4	3.50	.57
2-4 months	13	4.30	.48
4-6 months	59	3.98	.70
Longer than 6 months	88	4.13	.76
Total	164	4.07	.72

However, a one-way analysis of variance showed a significant difference between the intensity scores of individuals whose experiences had different durations (see Table 10 for descriptive statistics), $F(4, 614) = 48.87, p = .002$. The effect size was small (eta squared = .053). In looking at the S-N-K post hoc analysis results for the general long-term motivation group, the five durations differed from each other significantly in terms of their intensity scores. The small effect size shows that the difference between different lengths of time and intensity scores of students who were in the general long-term motivation group are relatively less meaningful overall.

Table 10. Descriptive Statistics of The Long-term Motivation Group

	<i>n</i>	<i>M</i>	<i>SD</i>
Less than 1 month	213	2.54	.93
1-2 months	137	3.16	.79
2-4 months	71	3.47	.69
4-6 months	80	3.56	.67
Longer than 6 months	118	3.72	.88
Total	619	3.14	.96

Witnessing DMCs in others. One further characteristic of DMCs proposed within the DMC literature is that it is possible to recognize their occurrence in other people, such as classmates or colleagues (Safdari & Maftoon, 2017). We examined this premise in our data. As shown in Table 11, nearly half of the respondents reported having witnessed DMCs in people around them.

Table 11. Participant Responses Regarding Witnessing DMCs in Others

	Entire Sample	DMC Group	Did not experience DMC (rest of sample)
Yes	476 (44.2%)	119	357
No	268 (24.9%)	42	226
Not Sure	333 (30.9%)	63	270
Total	1077	224	853

To examine the relationship within DMCs and whether these participants reported having witnessed DMCs in others, a 2 x 3 chi-square test for independence was carried out. A significant relationship was found, $\chi^2(2, N = 1077) = 10.09, p < .001$. As can be seen in the expected counts in Table 12, having experienced a DMC means that those individuals were also more likely to recognize and witness DMCs in others. The inverse is true of those who have not experienced DMCs: when asked whether they had seen this type of experience in others, they reported either that they had not or that they are not sure more often than expected, and reported they had witnessed it around them less than expected.

Table 12. 2 x 3 Chi-square Analysis between Participants' Own Experience of DMCs and Having Witnessed DMCs in Others

			DMC Experience		Total
			DMC Group	Rest of the sample group	
Witnessed in others?	Yes	count	119	357	476
		expected count	99.0	377.0	476.0
	No	count	42	226	268
		expected count	55.7	212.3	268.0
	Not sure	count	63	270	333
		expected count	69.3	263.7	333.0
Total	count	224	853	1077	
	expected count	224.0	853.0	1077.0	

Discussion

The aim of the present study was threefold: to validate the Turkish version of the DDS, to examine how commonly DMC-type motivation is recognized and experienced among tertiary level first-year L2 learners, and also to explore its manifestations across such demographic factors as gender and domain of study. First of all, the verification of the Turkish version of the instrument was performed through a series of validity and reliability tests. To better represent this particular population, data were collected from a large sample of learners from different domains of study spread across a state university in Turkey. The findings of the present study showed consistency with results previously obtained in the UK (Muir, 2016). The content validity established in the original DDS was retained in the Turkish version. The high synonymy obtained between the original and Turkish versions shows that the DDS translates readily from English into Turkish. The data analysis further indicated that the Turkish version had strong validity and reliability. The CFA

results of the Turkish version of DDS indicated that the model of the Turkish version is compatible with the original DDS (Muir, 2016). Thus, this study appeared to suggest a one-factor model of DMCs.

As for the second objective of the present study, our results revealed that respondents had a similar awareness of aspects of DMCs defined in the literature, yielding additional evidence of the construct's validity. However, since our data-set was obtained from one context, it is not possible to propose estimates as to the exact number of DMC experiences among tertiary level L2 students or to generalize these findings in other ways to a wider population. Our results showed, as a conservative estimate, that 20.8% ($n = 224$) of participants reported having experienced DMC-type motivation either once or on multiple occasions. This finding offers tentative support to Muir's findings in that the number of responses confirms earlier assertions that DMCs are a somewhat rare and unique motivational phenomenon experienced only by a minority, though our data also indicate that DMCs are a highly recognizable phenomenon.

With regards to language learning, over 24% of participants reported having experienced DMCs while learning L2 English at a university level. These DMC experiences, notably, occurred in a formal instructional context in which limited L2 instruction was provided. Consequently, it seems reasonable to conclude that this number is promising when this situational reality of the context is taken into consideration. Moreover, it implies that it is possible for learners to assert sufficient levels of autonomy, which enables them to experience DMCs in contexts that have limited L2 instruction and that also do not feature any motivational intervention. This finding implies the potential to nurture other L2 learners, the remaining participants who have not experienced DMCs, into a DMC state in instructed settings.

However, there is still room for future research on the ways in which individual or group level DMCs may be facilitated in such learning environments. As Muir (2020) suggests, it is possible to create DMCs at group levels though they are highly individualistic and uniquely constructed. Dörnyei and associates (2016) and Muir (2020) offer some guidelines to create DMCs at group level. They suggest DMC-generating frameworks and group projects with DMC potential that can be used for L2 learners in the instructed context. This implies that when students are provided with the right conditions and support, a significant number may be induced into either individual or group DMC experience. Thus, obtaining a better understanding of DMC experiences in further research could help creating effective motivational interventions or frameworks in various settings.

Our study also indicates that the DMC group significantly differed from the LTM group in both the duration over which their motivational experience lasted and the intensity level of their experience. When data from the LTM group not experiencing DMC and the DMC group are compared, it may thus be reasonable to conclude that DMC experiences might also have a positive impact on other aspects of language learning that require longitudinal intensity and stability such as effort, self-efficacy, ideal L2 self, and L2 willingness to communicate. If this is the case, there are important implications of DMCs for language learning contexts where a large proportion of students drift somewhat aimlessly and without focus. Thus, it seems fair to postulate that when DMCs can be consciously generated, they will function to regulate emotional and motivational fluctuations; therefore, DMCs can be regarded as an intense motivational strategy (Dörnyei et al., 2014, Gümüş, 2019; Selçuk & Erten, 2017).

Regarding the motivational intensity, the intensity level of the LTM group was higher than the DMC group. This result is in line with Muir's (2016) finding. The result of the LTM group is in compatible with what would be expected: the motivational intensity level needed to provide further energy becomes more crucial over time, and in order for this motivation to be maintained a higher

intensity is required as the duration of experience increases. However, the motivational intensity level of DMCs is linked to understanding of self and goals, not to the lengths of time (Muir, 2016).

The data analysis also revealed that there was no significant difference between the responses of male and female participants in the true DMC group, and that there was no variation in responses between respondents in different domains of study, thus giving support to the claim that gender and domain of study do not affect one's propensity to experience DMCs among tertiary level L2 learners (Muir, 2016). This suggests that interventions in varied classroom contexts might be successful.

Conclusion

The conclusions from this study represent an important step forward in developing our understanding of DMC construct. They also have offered possible research directions for future studies. The current study offers a solid foundation and springboard for future research by validating the Turkish version of the DDS and investigating how commonly DMCs are experienced among L2 English learners at the tertiary level, thus paving the way for a deeper exploration into the DMC phenomenon in the Turkish context.

Certain limitations remain in this study. Our findings are restricted to the population of the present study. As the study was carried out with only tertiary-level EFL learners, any further generalization from this study should be done with caution, considering the setting and the participants of the study. Further research with different respondents in other contexts may enable us to obtain different findings regarding the proportion of respondents who have experienced DMCs in instructed L2 settings.

In the present study, the number of L2 students who managed to experience DMCs in the instructional context with limited hours of teaching is promising, and it implies that learners can be caught up in DMC experiences in such educational contexts. However, little is known about the triggers needed for initial DMC emergence and the characteristics of DMCs especially in the classroom context (Gümüş, 2019; Ibrahim, 2016; Muir, 2020; Sak, 2019). Thus, future studies would be needed to explore these aspects.

Future studies that examine the commonalities of L2 learners who experience DMCs and the manifestations of DMCs across demographic factors would be promising. Another fruitful area of inquiry would be to investigate the effects of students' DMC experiences on self-efficacy, effort, the ideal L2 self, and L2 willingness to communicate to obtain data related to situation-specific and context-related variables. Such studies would enable better understanding of the possible long-term effects of DMC experiences. Moreover, comparative studies would be welcome to compare LTM groups with DMC groups to develop a clearer understanding of the similarities and differences between their motivational experiences.

About the Authors

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Ethics Approval & Consent to Participate

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards (Approval no. 35853172/433-2832). Online informed consent was obtained from all individual participants included in the study.

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Appendix

Hedefli Motivasyonel Akımlar Ölçeği (Directed Motivational Currents Disposition Scale)

1. Geriye dönüp baktığımda, bu tür bir deneyimi yaşadığım zamana dair çok iyi bir izlenimim var.
2. O süreç boyunca normalden çok daha verimli çalışabiliyordum.
3. Bu kadarını yapabildiğime ben bile şaşırdım.
4. Bu deneyim bana tüm yapmak istediklerimde ve hatta daha fazlasını başarmamda yardım etti.
5. Bu deneyim esnasında bana alışılmadık bir şeylerin olduğunu düşünüyorum-gerçekten büyüleyici bir zamandı.
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8. Bu yaşadığım deneyim boyunca hedefim hiç aklımdan çıkmıyordu.
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