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Understanding Internet service switching behaviour based on the stage model

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Abstract As customer switching is the major concern in the competitive Internet industry, many studies have sought to identify the determinants that cause customers to switch in order to build effective customer retention strategies. However, they were found to be insufficient for explaining the determinants and processes related to service switching. To fill this gap, this study attempts to provide a theoretical mechanism explaining customer service switching behaviours. More specifically, this study examines three hypotheses that may help ISPs develop appropriate marketing and business strategies. Survey data collected from 151 ISP customers in Australia were analysed to test the hypotheses. The results identify four stages of customers switching behaviours and suggest that motivational variables for switching behaviours differ across stages. This study provides a stepping-stone for analysing the staged model in the service-switching context and will help managers enhance their customer retention capability, and thus improve their organizational performance.

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1 Introduction

It is estimated that there will be 989 million broadband subscribers worldwide by the end of 2020 (Point Topic 2014), and the Internet penetration rate exceeded 42 % globally in January 2015 (Statista 2015). Recent advances in telecommunications have caused an upsurge in global Internet usage. The development of online communities and networks has led to the extensive use of the world wide web as the default medium for various social, technical, and commercial purposes (Bharadwaj et al. 2013; Chou et al. 2014; Lin et al. 2005). This has produced neck-and-neck competition among Internet service providers (ISPs), who now have to maintain high service levels and provide credible value-added services in order to survive (Dwivedi and Irani 2009; Rajabiun and Middleton 2015). Because there are many attractive and competitive packages available in the market, customers tend to continuously update their level of service by trying new services and benefits offered by different ISPs. This customer switching behaviour has been a burden for providers because they must bear customer churn and negative publicity due to frequent customer switching (Keaveney 1995; Keaveney and Parthasarathy 2001).

To leverage their advantages, ISPs have to learn new customer retention methods. Customers are the key to producing major economic gains (Woodruff 1997). Customer switching has become a sensitive issue, especially for firms providing online services (Bansal et al. 2005; Zhang et al. 2012). Hence, there is a desperate need to explore the various aspects related to customer service switching in order to develop a framework, which would help service providers in devising appropriate marketing and business strategies (Bhattacherjee et al. 2012).

Understanding the factors in customer churn is critical. Customer switching is the major concern in the competitive Internet industry (Walczak and Parthasarathy 2006). Moreover, acquiring new customers is much more difficult than retaining old ones, as many of the customers in this service field are fickle (Koufaris and Hampton-Sosa 2004; Woodruff 1997). Therefore, it is critical to analyse why customers switch service providers and what is the process they go through while switching in order to retain existing customers. Customers' switching behaviour can have a profoundly negative impact on firms (Kim et al. 2006; Rust and Zahorik 1993). Therefore, ISPs need to design more effective customer retention strategies.

Existing studies on this topic have focused on identifying the determinants that cause customers to switch, such as attitude toward switching (Bansal and Taylor 1999), service quality (Parasuraman et al. 1988; Wu et al. 2014), and the perceived cost of switching (Kim et al. 2013; Ping 1993; Wang et al. 2011). However, they have failed to provide theoretical mechanisms that explain whether service switching is a one-step process or a staged approach; furthermore, they have failed to describe how determinants differ across stages. Most studies have considered customer switching behaviour as a one-step process (Bhattacherjee et al. 2012; Li et al. 2007). However, individuals are ready and able to change their behaviour at different times and for different reasons (Kowalski et al. 2014; Prochaska et al. 1992). Customer switching behaviour can therefore be comprehensively understood using a staged approach. In addition, the importance of the determinants that affect

behavioural changes may vary depending on the stages of the change (Bamberg 2013).

To fill this gap, this study attempts to provide a theoretical mechanism describing customer service switching behaviours based on the transtheoretical model (TTM) and the theory of planned behaviour (TPB). Specifically, this research attempts to answer the following two questions: *1) Do customers follow a stage-based approach in their service switching? and 2) if they do, how do the factors affecting customer behaviour change throughout the stages?*

2 Literature review

Service switching theories have been applied to a variety of areas, such as mobile services (Calvo-Porral and Lévy-Mangin 2015), social network sites (Wu et al. 2014), cloud healthcare services (Lai and Wang 2015) and blog services (Hsieh et al. 2012). These studies can be divided into three streams of research: those that investigate (1) the process model of customer switching decisions, (2) the determinants that cause customers to switch, and (3) the heterogeneous nature of the firm's customer base and its relevance while analysing the differences between "stayers" and "switchers." The studies in the first category have focused on identifying the process that customers follow when switching service providers (Bansal et al. 2005; Wu et al. 2014; Zhang et al. 2012). For example, Roos and Gustafsson (2007) conducted over 6 years longitudinal study on switching in a telecom company based on switching path analysis technique. Providing a fuller description of the customer experience of switching, they identified the role of prejudice in customers' switching rationale.

The second category of literature has paid most of its attention to the determinants that motivate customers to switch service providers (Bhattacherjee et al. 2012; Wirtz et al. 2014). For example, Hsieh et al. (2012) attempted to understand how push (i.e., weak connections, writing anxiety), pull (i.e., switching cost, past experience), and mooring (i.e., enjoyment, usefulness, ease of use) factors shape bloggers' switching behaviour on social network sites. The results showed that weak connections and writing anxiety made bloggers switch social network sites, whereas enjoyment and usefulness encouraged them to stay on a site. In addition, switching cost and past experience also inhibited switching. Studies in the third category have provided insights into the differences between switchers and stayers (Ganesh et al. 2000; Peng and Wang 2006; Stein and Ramaseshan 2015). For example, Williams et al. (2011) compared between the customer attitudes of stayers and switchers in B2B services using data from a Fortune 100 company and found that stayers and switchers were much more similar than they were different in terms of service quality, satisfaction, and behavioural intentions. The most notable difference was in price perception: switchers appeared to be more price sensitive than stayers.

Synthesis of previous research has yielded two observations. First, many studies have attempted to explain customer service switching behaviours without a strong theoretical foundation. Although a few have provided theoretically founded research

models (Erevelles et al. 2003; Hsieh et al. 2012; Wirtz et al. 2014), most have simply developed a model to explain service switching behaviour by drawing on prior empirical results, and thus suffering from lacking a robust theory to explain why customers switch providers and what factors affect their switching behaviour. Second, most prior research has considered service switching behaviour as a snap decision. However, whether switching behaviour is a one-step process or a staged process remains unclear. Some researchers have insisted that customers pass through several stages while considering service provider switching. To clarify these issues, this study attempts to explain customer switching behaviour by integrating the TPB and the TTM, thus developing an active model that can help describe the shift from a customer's decision to start a program to the decision to continue using it.

3 Research model

3.1 Theoretical background

The TPB, based on the theory of reasoned action (Ajzen and Fishbein 1980), is founded on the notion that an individual's behavioural performance is predicted by his/her intention to follow that behaviour. The theory posits that variables such as attitude, subjective norms, and perceived behavioural control influence an individual's intention. It has been widely applied to many research questions such as adoption of information technologies and business practices (Taylor and Todd 1995; Venkatesh et al. 2003). However, the TPB has been criticized because it can explain only single instances of behaviour (Armitage and Arden 2002). Since customer switching behaviour can be considered a dynamic decision-making process that involves changes in values over time, understanding how behavioural factors change is essential to predicting service switching behaviour.

The TTM is one of the most influential models for the application of behavioural change. It assumes that individuals exist at different stages of readiness for behavioural change, and thus that a stage-matched intervention is required and should be tailored accordingly. The TTM has been rigorously applied across a broad range of behaviours such as exercise adherence (Fallon et al. 2005), driving (Kowalski et al. 2014), and aggregate financial behaviour (Ijevleva and Arefjevs 2014). According to the TTM, individuals progress through a series of stages of change when trying to modify their behaviour, either on their own or with the aid of formal intervention (Prochaska and Velicier 1997). Each stage produces different challenges that need to be addressed before progression to further stages.

Among the various stages of change that have been identified, five stages of change are widely used to explain behaviour change (Prochaska et al. 1992). Figure 1 shows the stages of the TTM.

The five stages of change are pre-contemplation (i.e., the period in which the individual does not consider changing or intends to engage in change for the next 6 months because of unawareness), contemplation (i.e., when the individual is aware that a problem exists but intends to change after sometime), preparation (i.e.,
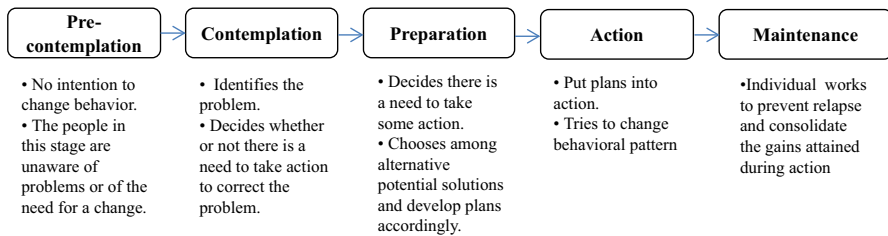
Fig. 1 Stages of change in the TTM

the period in which the individual plans to make necessary changes in the near future), action (i.e., when a plan of action has been implemented and the individual has changed his/her behaviour for less than 6 months), and maintenance (i.e., when the individual has sustained a change in behaviour for more than 6 months). These stages do not necessarily follow a linear pattern; chances of relapse are high in all stages. In particular, it is very significant in the last two stages (i.e., action and maintenance). Thus, the TTM can be considered a spiral model of change rather than a linear one. In addition, these stages are not equal in duration, and people progress through them at different paces.

3.2 Research hypotheses

3.2.1 Stages of switching behaviour hypothesis

Intentional behaviour change might not occur as an event but as a staged process (He et al. 2010; Prochaska et al. 1992). Customers move between the stages of being unaware, acknowledging problems, considering the possibility of change, preparing to make the change, taking action, and finally, maintaining the desired behaviour over time (Miller and Rollnick 2002).

Switching ISPs is an intentional behaviour and may occur as a staged process. If customers decide to change their ISP because they would like better benefits or are dissatisfied with their current service, they search for new ISPs that meet their needs. Once they find an ISP, they negotiate over final prices and the terms of service. Then, they will change to a new one. However, the process of switching is neither steady nor monotonous (Callaghan et al. 2010). Different issues are critical at different stages. The process of switching ISPs can be stopped, reversed, or abandoned. Customers pass through several stages of switching behaviour several times before they actually change their ISP. Attempting to explain switching behaviour based on a one-step process distorts the issues involved (Bamberg 2013; Prochaska et al. 1992). Thus, we assume that customer behaviour follows a staged approach while the service is being switched. We therefore propose the following hypothesis:

H1   It will be possible to identify five homogeneous subgroups in the total sample representing each of the five stages of behavioural change proposed by the TTM.

3.2.2 Influential factors in the stages of switching behaviour hypothesis

According to the TTM, different variables and processes may be important at different stages because customers at different stages might behave differently (Weinstein et al. 1998); thus, the effects of variables on switching behaviour may differ depending on the behavioural stages. Identifying the influences and factors inducing switching behaviour from one stage to the next is essential for understanding customer switching behaviour (Lippke et al. 2007).

The TPB is widely adopted to explain customer switching behaviour (Liao et al. 2007; Venkatesh et al. 2003). It proposes that behaviour is determined by the intention to perform the behaviour which is in turn influenced by three social-cognitive variables: attitude, subjective norm, and perceived behavioural control (Ajzen and Fishbein 1980). According to Armitage and Arden (2002), these TPB variables allow clear discrimination between the stages of behavioural change. Thus, combining the components of the TPB with the stages of the TTM will be helpful in explaining the processes of behavioural change.

Social cognitive variables such as attitude, subjective norm, and perceived behavioural control might move customers from lower stages (e.g., pre-contemplation and contemplation) to higher stages (e.g., action and maintenance) (Armitage and Arden 2002; Lippke et al. 2007). For example, customers in the pre-contemplation stage are not seriously considering switching their ISPs but are usually defensive and will avoid changing their behaviour (Prochaska et al. 1992). Thus, TPB variables have relatively low values in this stage. By contrast, customers in the action stage have begun to take the necessary steps to switch their ISPs and might thus have more positive attitudes, perceive greater subjective norms, show more perceived behavioural control, and be more likely to intend to switch their ISPs than those in the pre-contemplation stage. Therefore, we assume that TPB variables affect customer switching behaviour differently depending on the stages. We thus hypothesize as follows:

H2   The values of TPB variables are significantly different among the identified stage groups of the behavioural change model.

Besides TPB variables, many other variables that affect switching behaviour have been widely investigated to predict switching in marketing research (Burnham et al. 2003; Parasuraman et al. 1988; Taylor and Baker 1994). For example, Bansal and Taylor (1999) emphasized the importance of service quality as a general attitude and service satisfaction as a key antecedent of switching intention. In addition, the positive characteristics of competing service providers (i.e., alternative attractiveness) have been investigated as important factors for explaining service switching behaviour (Bansal et al. 2005; Jones et al. 2000). Although TPB variables such as attitude can be considered emotions occurring before consumption, service quality, satisfaction, and alternative attractiveness have been considered as evaluations of the emotions resulting from experience (Liao et al. 2007; Oliver 1981).

Several studies have tested quadratic relationship between TTM stages and their research variables (Armitage and Arden 2002; Duan et al. 2011; Lippke and

Plotnikoff 2006). Andrés et al. (2015) insisted that the emotional aspects of change have a quadratic relationship with TTM stages. As evaluations of the emotions resulting from experience, service quality, satisfaction, and alternative attractiveness are likely to show a quadratic relationship with TTM stages. For example, customers in the pre-contemplation stage are not seriously considering switching ISPs because they are satisfied with their current provider. However, customers in the contemplation and preparation stages want to change because of internal or external factors such as service failures or attractive alternatives. Satisfaction levels will rise again in the action and maintenance stages, after the customers have started using a new ISP. Thus, we assume that service quality and service satisfaction values will exhibit a U-shaped while alternative attractiveness values an inverted U-shaped association with behavioural change stages. Therefore, the following hypothesis is proposed:

H3 Service quality and service satisfaction values will initially decrease and then increase, while alternative attractiveness values will initially increase and then decrease across behavioural change stages.

4 Research methodology

4.1 Measures and pretest

Based on existing literature, we developed a questionnaire to empirically test the proposed hypotheses. Perceptual measures were employed for all variables. Multiple-item measures were used for all variables to improve reliability and validity (Churchill 1979). Stages of change variables were measured by modifying the items developed by Bamberg (2007). TPB variables including attitude, subjective norm, perceived behavioural control, and intention were derived from Armitage and Arden (2002), Bansal and Taylor (1999), Taylor and Todd (1995), and Weiss and Anderson (1992). Since perceived behavioural control has been operationalized as the perceived difficulty of performing a particular behaviour (Armitage and Arden 2002), perceived switching costs can be regarded as a control belief or perceived behavioural control (Bansal and Taylor 1999; Chang and Chou 2011). In this study, perceived behavioural control was measured using perceived switching cost. Service quality and satisfaction were measured by adapting the items used by Bansal and Taylor (1999), Oliver and Swan (1989), and Taylor and Baker (1994). Attractive alternatives were derived from Bansal et al. (2005) and Ping (1993). For the questionnaire, a 7-point Likert scale ranging from "strongly disagree" to "strongly agree" with a neutral point at 4 was used. The questionnaire used in this study is shown in Appendix 1.

Pretesting of the instrument was conducted on university students, who were personally distributed hard copies of the questionnaire. This helped ensure that there were no significant differences in ISP usage experience among the students ($p > 0.1$). Then, a pilot study involving 31 samples was conducted. The pretest and

Table 1 Characteristics of participants

Measures	Items	Frequency	Percent
Gender	Female	37	24.5
	Male	114	75.5
Age	Less than 20	5	3.31
	20–29	130	86.09
	30–39	12	7.95
	More than 40	4	2.65

pilot study respondents were excluded from the final data analysis. This preliminary study was conducted primarily to refine the instruments and the survey procedure.

4.2 Data collection and sample characteristics

The research methodology of this study involves the adoption of a web-based questionnaire. Respondents were contacted mainly through email. Most of the data were collected from university students. For the main study, 157 responses were collected, of which six were eliminated from analysis because they were incomplete. Thus, 151 responses were used for the analysis; 75.5 % were male and 24.5 % female, and 130 respondents were between the ages of 20 and 29. Table 1 presents the demographics of the participants, which reflect the relative youth of our sample.

4.3 Reliability and validity test

Table 2 presents the results of the reliability and validity tests. Cronbach's alpha is used to examine the reliability of the instruments. A higher cutoff value of 0.7[1] was adopted because all of the variables were measured by adapting existing instruments (Nunnally and Bernstein 1994). One item from service quality was dropped because its alpha value was lower than the 0.7 cutoff. All constructs but one had an alpha value higher than the 0.7 cutoff, ranging from 0.718 to 0.966. The item-to-total correlation was used to determine convergent validity. No items had an item-to total correlation of less than 0.4; thus, no items were eliminated from further analysis (Lee and Kim 1999; Straub 1989).

Factor analysis is used to check discriminant validity (Kerlinger 1986). Because each variable was measured using multi-item constructs, factor analysis with varimax was used to check for unidimensionality among items. Items with factor loading values lower than 0.5 were deleted. A factor analysis for the constructs is shown in Table 2. The relatively high reliability and validity values imply that the instruments used in this study are adequate.

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[1] Lower than 0.7 is acceptable for new instruments (Nunnally and Bernstein 1994).

Table 2 Reliability and validity test

Measure	No. of items	Reliability	Convergent validity	Discriminant validity
NPA	2	0.863	0.760; 0.760	0.938; 0.938
DC	2	0.717	0.558; 0.558	0.883; 0.883
GI	2	0.885	0.794; 0.794	0.947; 0.947
II	2	0.721	0.565; 0.565	0.884; 0.884
ATS	4	0.964	0.885; 0.919	0.934; 0.955
			0.932; 0.911	0.963; 0.951
SN	2	0.905	0.827; 0.827	0.955; 0.955
PSC	2	0.718	0.561; 0.561	0.883; 0.883
INT	3	0.966	0.919; 0.942; 0.926	0.963; 0.974; 0.967
SQ	2	0.896	0.812; 0.812	0.952; 0.952
AA	2	0.850	0.739; 0.739	0.932; 0.932
SA	3	0.961	0.916; 0.914; 0.925	0.962; 0.961; 0.967

NPA no problem awareness, *DC* desire to change, *GI* goal intention, *II* implementation intention, *ATS* attitude toward switching, *SN* subjective norm, *PSC* perceived switching cost, *INT* intention, *SQ* service quality, *AA* alternative attractive, *SA* satisfaction

5 Analysis results

5.1 Stages of switching behaviour

Cluster analysis was performed to identify the stages of switching behaviour according to the degrees of no problem awareness, desire to change, goal intentions, and implementation intention developed by Bamberg (2007) based on the model of action phases (Heckhausen and Gollwitzer 1987). This provided a theoretical basis for the stage model. A major issue of the clustering analysis is in determining the number of clusters. Although a variety of techniques have been used to determine the number of clusters, no standard objective selection procedure exists (Bock 1985). This study therefore employed multiple techniques, using dendrogram, agglomeration coefficient, and a priori theory, to overcome the shortcomings of any one method, as suggested by Ketchen and Shook (1996).

This study conducted cluster analysis following the two-stage procedure recommended by many researchers (Hair et al. 2005; Ketchen and Shook 1996). In the first stage, we inspected a dendrogram (see Appendix 2) generated by hierarchical cluster analysis based on Ward's method to determine the possible number of clusters in a range from 2 to 11. Then, an agglomeration schedule displaying the squared Euclidean distances between each case or group of cases was examined (Hair et al. 2005). The agglomeration coefficient showed rather large increases from four to three clusters ($779.84 - 652.08 = 127.76$), three to two clusters ($941.49 - 779.84 = 161.65$), and two clusters to one ($1662.58 - 941.49 = 721.09$). To help identify the relatively large increases in the cluster homogeneity, the percentage change in the clustering coefficient was

Table 3 Analysis of agglomeration coefficients

Number of clusters	Agglomeration coefficient	Differences in coefficient	Percentage change in coefficient in next level
10	340.20	25.86	7.06
9	366.06	39.76	9.80
8	405.82	41.90	9.36
7	447.72	43.93	8.93
6	491.65	69.76	12.43
5	561.41	90.67	13.90
4	652.08	127.76	16.38
3	779.84	161.65	17.17
2	941.49	721.09	43.37
1	1662.58		

calculated (see Table 3). A large coefficient increase indicates that two different clusters have been merged; thus, the number of clusters prior to the merger is a good candidate for the most appropriate number of clusters. Since a large agglomeration coefficient indicates that fairly heterogeneous clusters have been merged (Hair et al. 2005), the possible number of clusters could be two, three, or four.

Finally, a priori theory (i.e., TTM) was used to determine the number of clusters as a nonstatistical tool. As five stages of behaviour change are widely used in the TTM, the possible number of clusters could be five.

Based on these three techniques, it was possible that the number of clusters was either four or five. As the priori theory used is the most important factor in selecting the final cluster, validity of a five-cluster solution was examined first (Hair et al. 2005). The validity of the five-cluster solution was tested using analysis of variance (ANOVA) and a criterion-related test with influencing factors (see the detailed results in Appendix 3); in addition, the patterns of change exhibited by clustering variables at different stages were compared. In contrast to our expectations, the results indicate that two clusters which potentially represent the pre-contemplation and maintenance stages are not differentiated. This result may be explained by the fact that the behavioural changes involved in switching ISPs have different characteristics from other types of behavioural changes. For example, unlike those quitting smoking or cocaine, those switching ISPs have no concept of sustaining change; they simply find a new ISP so they can use the Internet. Thus, the maintenance stage (i.e., using a new ISP continuously) is identical to the pre-contemplation stage (i.e., not even thinking about changing ISPs), with the exception of the initial selection of an ISP.

As the five-cluster solution did not show robust results, the validity of the four-cluster solution was tested. Table 4 shows the results of the cluster analysis conducted using Ward's hierarchical technique. Because the group means are significantly different at the 0.01 confidence level, groups might be properly categorized; that is, the switching behaviour stages differ.

Table 4 Cluster analysis results

Clustering variables	1	2	3	4	*p* value
No problem awareness	5.775	4.261	4.090	3.083	0.00
Desire to change	2.563	5.262	3.641	5.806	0.00
Goal intention	2.113	5.913	4.013	5.528	0.00
Implementation intention	2.148	5.717	4.115	2.000	0.00
Stages of behaviour	PCO	ACT	CON	PRE	
Number of cases	71	23	39	18	

PCO pre-contemplation, *CON* contemplation, *PRE* preparation, *ACT* action
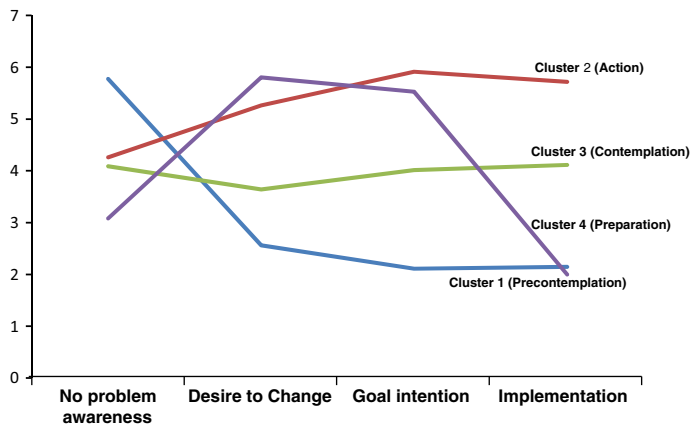

Fig. 2 Change patterns of customer switching behaviour stages by clustering variables

Figure 2 shows the patterns of change in regard to the customer switching behaviour stages by clustering variables. All four clusters, which each represents switching behaviour stages, shows different change patterns by clustering variables.

Figure 3 displays clustering variables across the stages. The importance of clustering variables to find possible cluster numbers differ across the four clusters. Based on the dendrogram, the percentage change in the agglomeration coefficients, a priori theory, validation results using ANOVA, and change patterns (Ketchen and Shook 1996), the four-cluster solution was used in second stage of cluster analysis to finalize the appropriate number of clusters.

In the second stage, we further conducted a non-hierarchical clustering procedure using the K-means clustering method to validate whether the number of clusters suggested by the first stage was acceptable. The analysis result is similar to that conducted using Ward's method in the first stage, except for the numbers of cases and the group sequence. Thus, the appropriate number of clusters was determined to be four. Both cluster analyses show proof of reliability and validity, and either
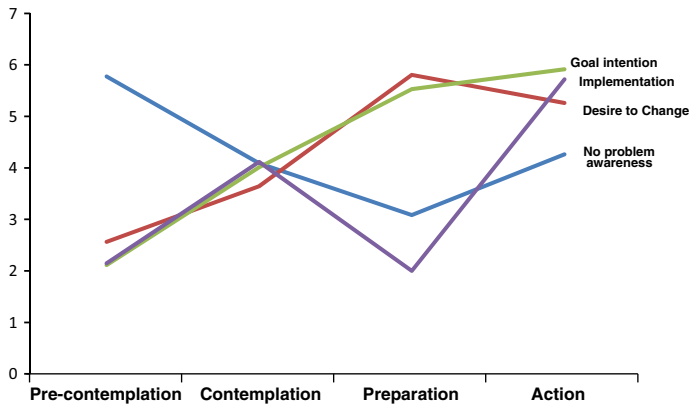
Fig. 3 Changes of clustering variables across the stages

Ward's or the K-means method may be used. For the sake of convenience, the result achieved using Ward's technique is adopted.

The results represent four significantly different clusters. Customers in Cluster 1 are satisfied with their current ISP and thus show no problem awareness (mean = 5.775); they have low desire to change (mean = 2.563) and low goal intentions (mean = 2.113) and implementation (mean = 2.148). Thus, this cluster is considered to be in the pre-contemplation stage. The degree of goal intention (mean = 5.806) and desire to change (mean = 5.528) of Cluster 4 is higher than that of Clusters 1 and 2. Participants in this cluster represent a higher chance of changing ISPs. Participants in this cluster are the ones with the highest problem awareness (mean = 3.083) and the least satisfaction. Therefore, it is labelled as preparation stage. Participants in Cluster 2 report the highest degree of implementation intention (mean = 5.717) along with a high degree of goal intention (mean = 5.913). Participants in this cluster score second on the no problem awareness (mean = 4.261) after Cluster 1, because they are already in the final step of ISP switching and are thus much closer to a stable state. Thus, as with participant in Cluster 1, they also do not foresee any problems concerning the new ISP: this is the action stage. Because participants in Cluster 3 show higher levels of problem awareness (mean = 4.090) and desire to change (mean = 3.641),[2] it is labelled as contemplation stage.

5.2 Influential factors by stage of switching behaviour

This study confirms that ISP switching behaviour of customers follows a staged process and not a one-step process. Based on these results, ANOVA is performed to find which factors influence customers' decision to progress through the stages (see the detailed results in Appendix 4). Table 5 shows the results of the ANOVA and a post hoc analysis using the Duncan method.

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[2] We consider the desire to change in Cluster 1 as low while that in Cluster 3 as high based on the median value (=3.500), which is a common approach (MacCallum et al. 2002).

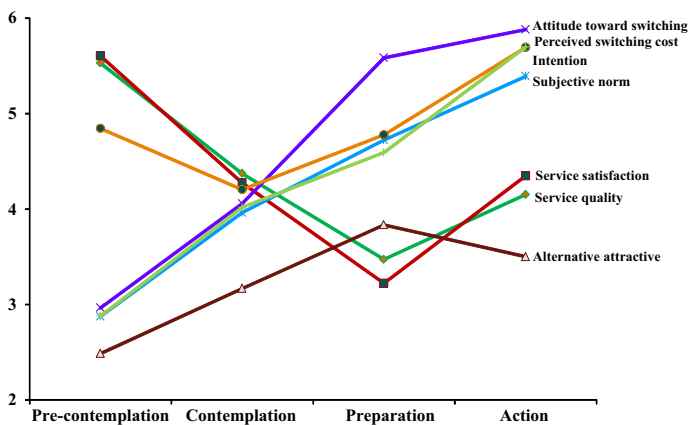**Table 5** Influential factors by stages of switching behaviour

Factors	Stage				F-value	Post-hoc results (using Duncan method)
	PCO	CON	PRE	ACT		
ATS	2.965	4.057	5.583	5.880	42.68***	PCO < CON < PRE = ACT
SN	2.873	3.961	4.722	5.391	25.34***	PCO < CON < PRE = ACT
PSC	4.845	4.205	4.778	5.695	6.02***	CON = PRE = PCO < ACT
INT	2.878	4.017	4.593	5.697	26.54***	PCO < CON = PRE < ACT
SQ	5.528	4.371	3.472	4.152	19.51***	PRE < ACT = CON < PCO
AA	2.486	3.167	3.833	3.500	7.24***	PCO = CON < ACT = PRE
SA	5.605	4.273	3.222	4.348	25.15***	PRE < CON = ACT < PCO

PCO pre-contemplation, *CON* contemplation, *PRE* preparation, *ACT* action

ATS attitude toward switching, *SN* subjective norm, *PSC* perceived switching cost, *INT* intention, *SQ* service quality

AA alternative attractive, *SA* satisfaction

*** $p < 0.01$

Fig. 4 Changes of influential factors by stage

A significant difference is noted for influential factors across stages. The important factors in customer switching behaviour differ across stages. For example, the behaviours of customers in the pre-contemplation stage differ significantly from those of customers in the action stage.

Figure 4 shows how the influential factors change along with customers' switching service behaviour. Attitudes to switching and subjective norms follow a linear pattern, with intention varying significantly and linearly across stages. This linear pattern shows that, as customers start progressing to higher stages, TPB variables such as subjective norm and intention become more authoritative, forcing the customer to progress further.

However, perceived switching costs show a different pattern from that of the other TPB variables. It is high in the pre-contemplation stage because the customer is satisfied

and considers switching to be costly. The perceived switching cost decreases in the contemplation stage, which is also justifiable because the user is thinking about switching. However, it rises again in the progression from the preparation to the action stage, perhaps because users who have formed a strong opinion or have firmly decided to switch ISPs being to consider switching costs more seriously. Finally, because action is the second-to-last most stable stage, switching cost is predicted to be high.

Service quality and service satisfaction report a non-linear pattern with the stages. Their graphs follow the same approach while progressing across the stages and exhibit a skewed U-shaped relationship with them. For service quality, the user is highly satisfied in the pre-contemplation stage. As soon as the customer starts progressing across stages (i.e., decides to switch ISP), however, service quality starts dropping across stages and increases again in the action stage, considered the second-to-last sustainable stage in the service switching context. Service satisfaction is much higher in the pre-contemplation stage, which is justifiable because customers are significantly more satisfied in this stage and do not want to switch ISPs. However, satisfaction gradually decreases across the contemplation and preparation stages, because the customer wants to change ISPs due to external or internal factors, such as service failure, attractive alternatives, better prices, or peer pressure. The satisfaction level rises again in the action stage because the user has again started using a new service and is confident that switching will never again be necessary.

Unlike for service quality and satisfaction, the graph for attractive alternatives shows a skewed inverted U-shape. The value of attractive alternatives is low in the pre-contemplation stage (because the customer is satisfied and does not want to switch), which is acceptable. It increases in the contemplation stage because the customer is thinking about switching, and it again takes a lead in the preparation stage, perhaps because user strongly determined to switch a service will starts considering switching cost more seriously, and the same applies to the action stage.

5.3 Discussion and implications

The main objective of this study is to test the applicability of the stage model derived from psychology in the service-switching context. It is also assumed that the transition across stages is influenced by psychological factors derived from the TPB and constructs from the service marketing literature. The stage model specifies that the individual progresses through a series of qualitatively distinct stages instead of a one-step process when undergoing behavioural change.

The results of the cluster analysis validate that the subjects' responses to the measures can be used to categorize them into stages. The optimal solution is derived using four clusters, classified as pre-contemplation, contemplation, preparation, and action on the basis of a staged algorithm, which validates Hypothesis 1. Although the perceived switching cost exhibited a non-linear increase across stages, it still accounts for the staged phenomena. Significant differences in the TPB variables across stages are observed, supporting Hypothesis 2. In addition, the constructs from the service marketing literature show significant differences depending on the stage, validating Hypothesis 3. Our results serve as a practical guideline for organizations that provide Internet connections or other services, enabling them to develop business strategies to

better target their market. This study could offer important insights into the significance of various intentional and attitudinal variables across stages and their impact on consumers' decisions. The results provide deep insights in relation to the variables, which ISPs should focus on to induce or reduce service switching.

To our best knowledge, it is the first attempt to test the stage model in the service switching context. This research derives important inferences from both theoretical and managerial perspectives. From the managerial perspective, different factors affect customers' decision-making throughout the different stages of service switching. This study can provide guidelines to ISPs to minimize their customers' switching probability, and hence avoid negatives outcomes associated with switching. The results allow us to draw further inferences regarding the study's practicality and legitimacy. The theoretical validation of the proposed hypotheses on customer service switching allows researchers to consider the study a starting point for further research in this area.

6 Conclusion

Recent advances in information and communication technologies have created an upsurge in Internet use, leading to a high level of competition among ISPs (Walczak and Parthasarathy 2006). Because of this increased competition, customer retention and customer switching behaviour have become critical issues. Drawing from the TPB and TTM, this study identified that customer service switching behaviour follows four staged decision making processes and provided evidence that different factors play different roles across those stages. Interestingly, intention, attitude to switching, and subjective norm follow a linear pattern, whereas service quality, attractive alternatives, and service satisfaction have a non-linear relationship with the stages. The findings of this study not only serve as a foundation for researchers seeking to understand the staged approach to switching behaviour but also provide practitioners with guidelines for enhancing their customer retention capability and thus improving their organizational performance.

The results obtained from this research should be considered in light of their limitations. First, time constraints and limited resources prevented us from collecting large amounts of data. Hence, we suggest using a larger sample in the future to produce more generalized results. Second, the findings of this study should be interpreted within the ISP service switching context. To refine the research outcomes, the same hypotheses should be applied to services other than ISPs. Third, this study employed a cross-sectional design despite that the stages of change were the main interest. Future studies should employ longitudinal designs. Fourth, market barriers (e.g., 2-year contracts) that prevent customers from switching were not considered. Future studies could enhance the strength of this study's results by addressing such market barriers. Finally, this study focused on relatively young university students, and the results may differ for older or less educated users. Including a variety of generations and different educational levels would provide more robust results.

Appendix 1: Question items

Construct	Items
No problem awareness (NPA; 2 items)	NPA1: I am sure that my "CURRENT ISP" is providing me quite a satisfactory service NPA2: As I am convinced that my "CURRENT ISP" is providing me competitive service, I do not want to switch to another ISP
Desire to change (DC; 2 items)	DC1: I would like to use an ISP other than my "CURRENT ISP" for my Internet connection usage DC2: I think I will continue to face problems if I use my "CURRENT ISP"
Goal intention (GI; 2 items)	GI1: My intention to switch to a "NEW ISP" instead of continuing to use my "CURRENT ISP" is very high GI2: How likely is it that you will switch to a "NEW ISP" from your "CURRENT ISP"?
Implementation intention (II; 2 items)	II1: How likely is it that you will switch to a "NEW ISP" from your "CURRENT ISP"? II2: Have you decided on the ISP that you would like to switch to in the near future (or in the next few weeks)?
Attitude toward switching (ATS; 4 items)	ATS1: For me, switching service from my "CURRENT ISP" to a "NEW ISP" would be a good idea ATS2: For me, switching service from my "CURRENT ISP" to a "NEW ISP" would be beneficial ATS3: For me, switching service from my "CURRENT ISP" to a "NEW ISP" would be wise ATS4: For me, switching service from my "CURRENT ISP" to a "NEW ISP" would be pleasant
Subjective norm (SN; 2 items)	SN1: People who influence my behaviour would think that I should switch my Internet connection from my "CURRENT ISP" to a "NEW ISP" SN2: Most people who are important in my life would think that I should switch my Internet connection from my "CURRENT ISP" to a "NEW ISP"
Perceived switching cost (PSC; 2 items)	PSC1: On the whole, I would spend a lot of time, money, and effort to change my "CURRENT ISP" PSC2: Considering everything, the costs of switching my Internet connection from my "CURRENT ISP" to a "NEW ISP" would be very high
Intention (INT; 3 items)	INT1: I am likely to switch from my "CURRENT ISP" to a "NEW ISP" in the near future INT2: I will probably switch from my "CURRENT ISP" to a "NEW ISP" in the near future INT3: I will certainly switch from my "CURRENT ISP" to a "NEW ISP" in the near future
Service quality (SQ; 2 items)	SQ1: I believe that the general quality of my "CURRENT ISP" service is high SQ2: I consider my "CURRENT ISP" service to be excellent SQ3: The quality of my "CURRENT ISP" with respect to Internet access has generally (dropped)
Service satisfaction (SA; 3 items)	SA1: The service provided to me by my "CURRENT ISP" is very pleased SA2: The service provided to me by my "CURRENT ISP" is wise choice SA3: The service provided to me by my "CURRENT ISP" is very happy
Alternative attractiveness (AA; 2 items)	AA1: A "NEW ISP" would be a lot fairer than my "CURRENT ISP" AA2: A "NEW ISP" services would benefit me a lot more than my "CURRENT ISP"

Appendix 2: Dendrogram for cluster analysis

Dendrogram Using Ward Linkage
Rescaled Distance Cluster Combine
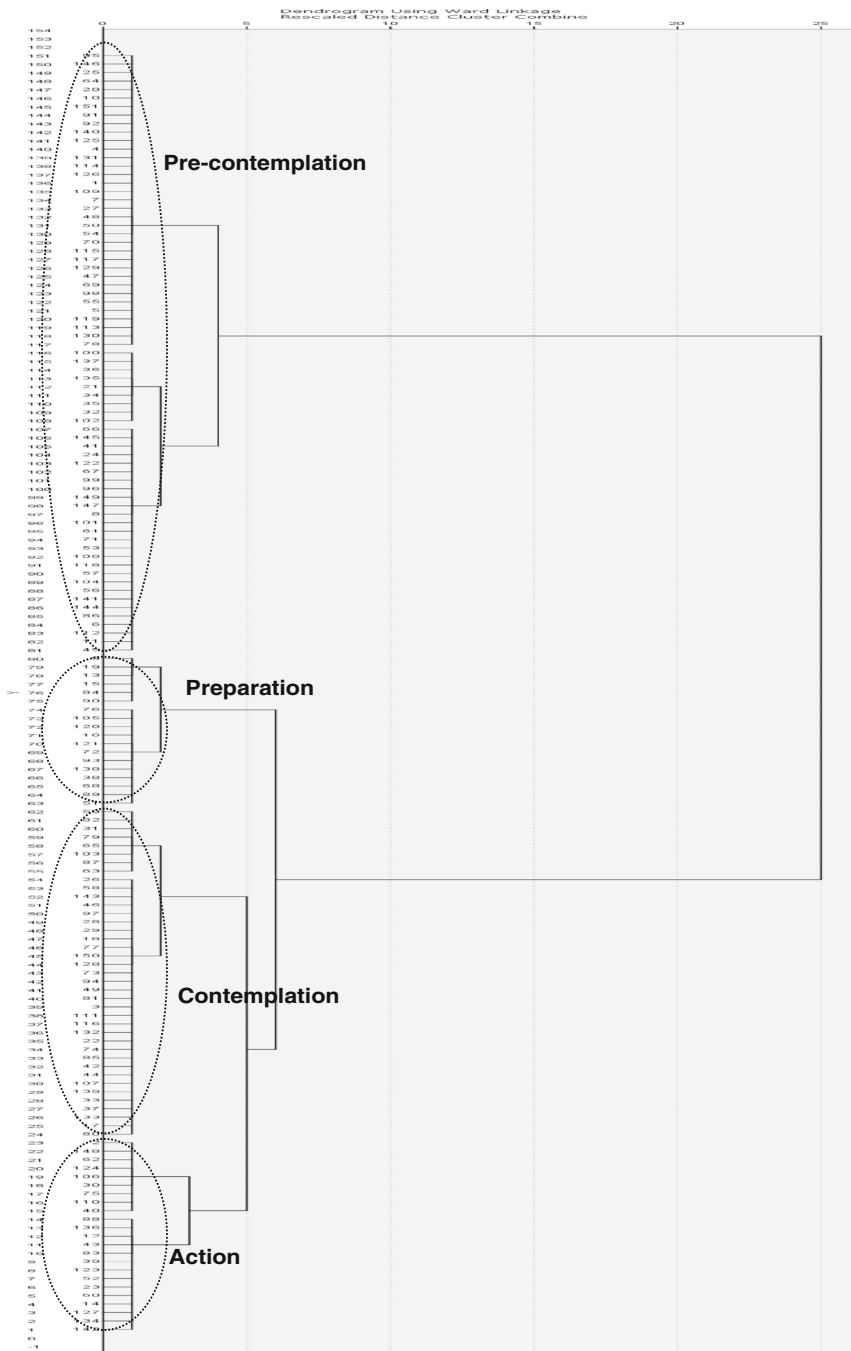
Appendix 3: Detailed results of ANOVA and post-hoc analysis

Based on the dendrogram shown in Appendix 2, the agglomeration schedule in Table 3, and a priori theory (i.e., TTM), it is determined that the possible number of clusters could be five. Consequently, the validity of the five-cluster solution was tested using analysis of variance (ANOVA) and a criterion-related test with influencing factors; furthermore, the patterns of change exhibited by clustering variables at different stages were examined. Table 6 shows the results of cluster analysis conducted using Ward's hierarchical technique. Although the group means are significantly different at the 0.01 level, post hoc analysis indicates that clustering variables such as no problem awareness and goal intention between Cluster 1 and Cluster 4 are not significant.

Similar to the Table 4, Cluster 2 can be labelled as the action stage, Cluster 3 as the contemplation stage, and Cluster 5 as the preparation stage. Cluster 1 and Cluster 4 have no significant differences in terms of no problem awareness (mean = 6.000 and 5.556 respectively) and goal intention (mean = 1.829 and 2.333 respectively). Cluster 1 has the lowest values for goal intention (mean = 1.886) and implementation (mean = 1.329). Thus, this cluster is considered to be part of the pre-contemplation stage. Cluster 4 could be labelled part of the maintenance stage because it has slightly higher values for desire to change and implementation than does Cluster 1; however, the differences between these two clusters are not as clear compared with those between other clusters.

In addition, Fig. 5 shows that the change patterns for Cluster 1 and Cluster 4 by clustering variables are relatively similar compared with those for Cluster 2, Cluster 3, and Cluster 5.

Table 7 reports the results of the criterion-related validity test with influencing factors. The results show that customers in the pre-contemplation stage do not have significantly different attitudes toward switching (mean = 2.614) compared with customers in the maintenance stage (mean = 3.305). Similarly, no significant differences exist between customers in the pre-contemplation stage and in the maintenance stage in terms of social norm, perceived switching cost, intention, service quality, alternative attractive, and satisfaction. Based on the results of ANOVA, the change patterns of stages by clustering variables, and the criterion-related test, the five-cluster solution is determined not to be the optimal solution.

Table 6 Cluster analysis results for the five-cluster solution

Clustering variables	1	2	3	4	5	p value	Post-hoc results
No problem awareness	6.000	4.261	4.090	5.556	3.083	0.00	PRE < CON = ACT < MAI = PCO
Desire to change	1.829	5.262	3.641	3.278	5.806	0.00	PCO < MAI = CON < ACT = PRE
Goal intention	1.886	5.913	4.013	2.333	5.528	0.00	PCO = MAI < CON < ACT = PRE
Implementation	1.329	5.717	4.115	2.944	2.000	0.00	PCO < PRE < MAI < CON < ACT
Stages of behaviour	PCO	ACT	CON	MAI	PRE		
Number of Cases	35	23	39	36	18		

PCO pre-contemplation, *CON* contemplation, *PRE* preparation, *ACT* action, *MAI* maintenance
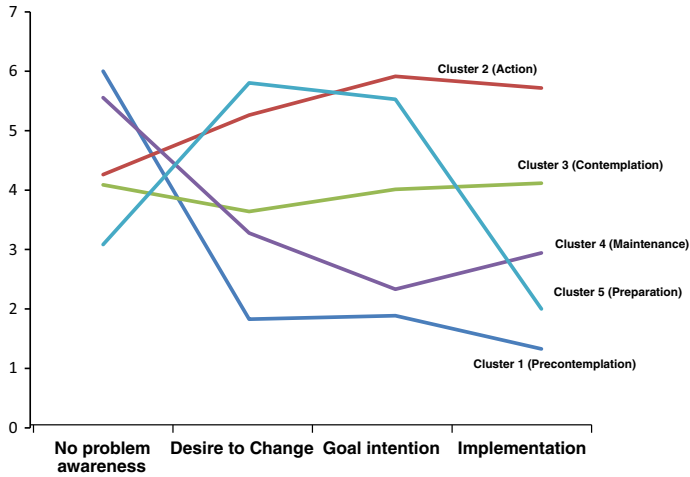
Fig. 5 Change patterns of customer switching behaviour stages by clustering variables

Table 7 Influential factors by stages of switching behaviour

Factors	Stage					F-value	Post-hoc results (using Duncan method)
	PCO	CON	PRE	ACT	MAI		
ATS	2.614	4.057	5.583	5.880	3.305	34.37***	PCO = MAI < CON < PRE = ACT
SN	2.427	3.961	4.722	5.391	3.305	21.92***	PCO = MAI < CON < PRE = ACT
PSC	4.928	4.205	4.778	5.695	4.763	4.56***	CON = PRE = MAI = PCO < ACT
INT	2.571	4.017	4.593	5.697	3.176	21.09***	PCO = MAI < CON = PRE < ACT
SQ	5.588	4.371	3.472	4.152	5.180	16.70***	PRE < ACT = CON < PCO = MAI
AA	2.300	3.167	3.833	3.500	2.667	5.78***	PCO = MAI < CON = ACT = PRE
SA	6.067	4.273	3.222	4.348	5.157	22.94***	PRE < CON = ACT < MAI = PCO

PCO pre-contemplation, *CON* contemplation, *PRE* preparation, *ACT* action, *MAI* maintenance

ATS attitude toward switching, *SN* subjective norm, *PSC* perceived switching cost, *INT* intention, *SQ* service quality

AA alternative attractive, *SA* satisfaction

*** $p < 0.01$

Appendix 4: Detailed results of ANOVA and post-hoc analysis

Results of ANOVA

Factor	Source of variation	Sum of square	DF	Mean of square	F-value	p value
Attitude toward switching	Between groups	202.670	3	67.557	42.676	.000
	Within groups	232.703	147	1.583		
	Total	435.373	150			
Subjective norm	Between groups	135.286	3	45.095	25.336	.000
	Within groups	261.641	147	1.780		
	Total	396.927	150			
Perceived switching cost	Between groups	32.404	3	10.801	6.023	.001
	Within groups	263.635	147	1.793		
	Total	296.040	150			
Intention	Between groups	152.670	3	50.890	26.543	.000
	Within groups	279.923	146	1.917		
	Total	432.593	149			
Service quality	Between groups	86.088	3	28.696	19.506	.000
	Within groups	216.256	147	1.471		
	Total	302.344	150			
Alternative attractive	Between groups	38.016	3	12.672	7.244	.000
	Within groups	257.153	147	1.749		
	Total	295.169	150			
Satisfaction	Between groups	106.374	3	35.458	25.149	.000
	Within groups	207.258	147	1.410		
	Total	313.632	150			

DF degree of freedom

Post-hoc analysis

Factor	Stage	Number	Subset for alpha = 0.05		
			1	2	3
Attitude toward switching	Pre-contemplation	71	2.9648		
	Contemplation	39		4.0577	
	Preparation	18			5.5833
	Action	23			5.8804
	Sig.		1.000	1.000	.371
Subjective norm	Pre-contemplation	71	2.8732		
	Contemplation	39		3.9615	
	Preparation	18			4.7222
	Action	23			5.3913
	Sig.		1.000	1.000	.059
Perceived switching cost	Contemplation	39	4.2051		
	Preparation	18	4.7778		
	Pre-contemplation	71	4.8451		
	Action	23		5.6957	
	Sig.		.088	1.000	
Intention	Pre-contemplation	71	2.8779		
	Contemplation	39		4.0171	
	Preparation	18		4.5926	
	Action	23			5.6970
	Sig.		1.000	.119	1.000
Service quality	Preparation	18	3.4722		
	Action	23		4.1522	
	Contemplation	39		4.3718	
	Pre-contemplation	71			5.5282
	Sig.		1.000	.493	1.000
Alternative attractive	Pre-contemplation	71	2.4864		
	Contemplation	23	3.1667		
	Action	39		3.5000	
	Preparation	18		3.8333	
	Sig.		.072	.053	
Satisfaction	Preparation	18	3.2222		
	Contemplation	39		4.2735	
	Action	23		4.3478	
	Pre-contemplation	71			5.6056
	Sig.		1.000	.812	1.000

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