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Matthew Head and C. Samantha Porter

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Developing a Collaborative Design Toolkit for the Personalisation of Running Shoes

Matthew Head, Loughborough University, Leicestershire, UK

C. Samantha Porter, Loughborough University, Leicestershire, UK

Abstract: Sport footwear is an area where collaborative design is already happening with consumers able to personalise the aesthetics of their footwear using the internet. Aesthetics do not appear to be the consumers' primary interest when purchasing running shoes; a need was identified for better fitting and performing running shoes than is currently available; a large number of consumers are also reluctant to purchase online, preferring to purchase from specialist running stores. In this paper the development of an in store personalisation service with a primary focus of delivering better fitting and performing footwear is detailed. Experts in biomechanics and additive manufacturing were consulted, and focus groups, interviews and surveys were conducted to ensure implementation of an effective service that empowered the consumer, putting them at the centre of a collaborative design process. A design toolkit was developed for the service (www.yourstep.co.uk) and tested online. The results are discussed and future developments defined. This research forms part of the Elite to High Street project, a five-year multi-million pound IMCRC-funded interdisciplinary project run by Loughborough University with industrial partners including: New Balance, UK Sport and 3D Systems.

Keywords: Sports Footwear, Running Shoes, Personalisation, Collaborative, Customer, Toolkit

Introduction

CATERING TO 'MARKETS of one' has proven difficult for many companies to implement: Levi's, Dell and Mattel all ultimately failed in their attempts to offer personalised goods (Williams, 2010; Franke & Piller, 2004). In the sports footwear market there appears to be no such issue, several companies offer personalised footwear, enabled through online collaborative design toolkits: Nike iD (see figure 1), Mi Adidas and Your Reebok are some of the most prominent. These services allow the consumer to personalise the aesthetics, primarily the colours, for a range of different footwear.

For running shoes, the largest selling shoe within the sports footwear market (NPD Group Inc., 2008), research has identified that many runners require better fitting and performing footwear than is currently available (Babb, 2008; Stuhlfaut & Sullivan, 2007; Mintel Marketing Intelligence, 2007; Witana, 2004; Goonetillek, 2003) and place greater importance on the comfort and fit of their footwear than the aesthetics (Head, Porter & Summerskill, 2009; Marti, 1989; Collazzo, 1988). As a consequence, many consumers prefer purchasing in stores (Head, Porter & Toon, 2010; Mintel Marketing Intelligence, 2008), where they are able to try the footwear on (Redaelli, 2005).

The current design toolkits are based online, reducing the potential for consumers to foster product attachment, and do not allow collaborative design of the footwear's comfort and performance beyond that which can be found across a standard shoe range. To successfully

implement a service delivering personalised goods it is important to cater to consumer needs (Franke, Schreier & Kaiser, 2010), in this case there appears to be a disconnection between what many runners desire and the currently available options.

The aim of this research was to develop a collaborative design toolkit for the personalisation of running shoes. The primary focus of this paper is the toolkit development and testing. To enable development, research was required to establish a service framework for personalised sports footwear.



Figure 1: The Nike ID System

Research Activities

To develop a toolkit it was important to understand consumers' running shoe purchase preferences and attitudes towards running shoe personalisation. The author found limited literature for these subjects and it was, therefore, desirable to collect both qualitative and quantitative data. Quantitative data were used to support/contest the findings in the current literature and qualitative data were used to provide the specific details necessary to aid the development of a toolkit for running shoe personalisation. These data were collected using three different methods, identified as appropriate; focus groups, questionnaires and interviews.

Focus Group

Twenty running shoe owners were chosen as participants; they were split into four separate sessions: male and female runners and male and female non-runners. Non-runners used their running shoes predominantly for activities other than running. The groupings were used to encourage a comfortable and suitable environment in which everyone could contribute (Langford & McDonagh, 2003).

Questionnaires

Two instances of questionnaires were employed: one at the London Marathon Exposition and another online. Forty-two participants (31 males and 11 females) were solicited at the Exposition: two were non runners, the rest ran at least 5 miles a week, over 70% ran between 11 and 40 miles a week. This questionnaire was designed to focus primarily on consumers' running shoe purchase preferences.

Participants completing the online questionnaire were asked to design running shoes using an existing personalisation service and then answer questions concerning their experience. They were recruited primarily from the Loughborough University student population. Forty-one participants completed the survey in total; there were no exclusion criteria with respect to their running habits.

Interviews

Semi-structured interviews were carried out in a specialist running store, identified in the literature as the most popular purchase location for runners (Intel Marketing Intelligence, 2008; Stuhlfaut & Sullivan, 2007). There were two main intentions of the interviews: to obtain an overview of the service provided and to understand consumers' purchase decisions in these stores. Interviews were carried out with five assistants and four customers at four different stores within the United Kingdom.

The data captured by these methods were used to help define the product and service specifications (see table 1).

Table 1: Key Requirements from the Product and Service Specifications

SPECIFICATION		INFORMATION
PRODUCT	The shoes should be designed, primarily, to look functional.	<i>They should be designed to look practical but also be attractive.</i>
	The shoe design should focus on providing good comfort and support to the consumer.	<i>The shoe should provide improved comfort and support in comparison with a standard shoe and current personalisation services.</i>
	A carefully considered range of aesthetic choices should be offered.	<i>Colours provided should be carefully considered to minimise consumer regret and potential brand damage. Key conservative running shoe colours should be provided for selection: blue, white, red and black.</i>
	Consumers should be able to produce a unique pair of shoes.	<i>This may be through the comfort and support and/ or the aesthetic choices offered.</i>
	The shoes must be priced competitively and appropriately.	<i>The target price premium of the shoes should be around 10% in comparison with equivalent standard shoes.</i>
SERVICE	Primarily, the service should be carried out in an in store environment.	<i>Shop assistants should be utilised effectively, primarily for measurements and fitting.</i>
	Consumers should be allowed a suitable time frame with which to complete the service.	<i>The fitting element of the service should be able to be completed within 20 minutes but consumers should be able to spend over 20 minutes configuring their shoe aesthetically</i>
	The service should employ a strong, consistent theme.	<i>All elements of the service should be cohesive.</i>
	Consumers should feel comfortable during the whole experience.	<i>Shop assistants should ensure consumers are comfortable during the fitting process. The consumers should be allowed privacy, if desired, to make their aesthetic selections. This may be undertaken in a separate location.</i>
	Consumers should be made to feel part of the experience.	<i>The consumer's opinion should appear important during the whole process. They should be involved in every decision. Contact should be maintained with the consumer during the waiting period.</i>

Service Development

The development of the service framework and the resultant product concept provided a structure into which the toolkit could then be integrated.

Service Framework

Guidelines on service and experience design were consulted during the framework definition (Bardill, Herd, & Karamanoglu, 2007; Pine & Gilmore, 1998; Scheuing & Johnson, 1989); implementing an effective service will increase the potential of retaining customers (Polyani, 1958).

Customers will face a similar process regardless of which service they use to purchase their running shoes, simplified into four steps below (see table 2).

Table 2: The Four Steps to Delivering Running Shoes

NO.	STEPS	DETAIL
1.	Data Collection	<i>Understanding what the customer wants</i>
2.	Preference Selection	<i>Providing the customer with the options for selection</i>
3.	Shoe Fitting	<i>Establishing the customer has the correct footwear sizing</i>
4.	Shoe Delivery	<i>Customer receives the chosen footwear</i>

These steps can be adapted for a potential personalisation service using Shostack's molecular modelling approach (1982), and expanded to include required secondary services (see figure 2). These different parts of the service are detailed below.

Data Collection

Comfort and support were identified as the most important aspects to many wearers of running shoes therefore it was important to offer footwear personalised by their fit, this requires a set of measurements of the foot. Suitable methods are being investigated as part of this project (Salles & Gyi, 2010) and externally (Krauss, et al., 2010). Capturing of personal data regarding the customers' running shoe use is necessary to define the required performance aspects for the footwear product.

Preference Selection

In addition to the personalisation of the fit, the customer will be provided with comfort and performance options to improve their experience i.e. choice of different uppers.

Aesthetics, while not as important as the comfort or performance of the footwear, are still important to those who purchase running shoes (Stuhlfaut & Sullivan, 2007). Runners desire that aesthetic options provided should be simple and include 'traditional' colour schemes (Head, et al., 2010).

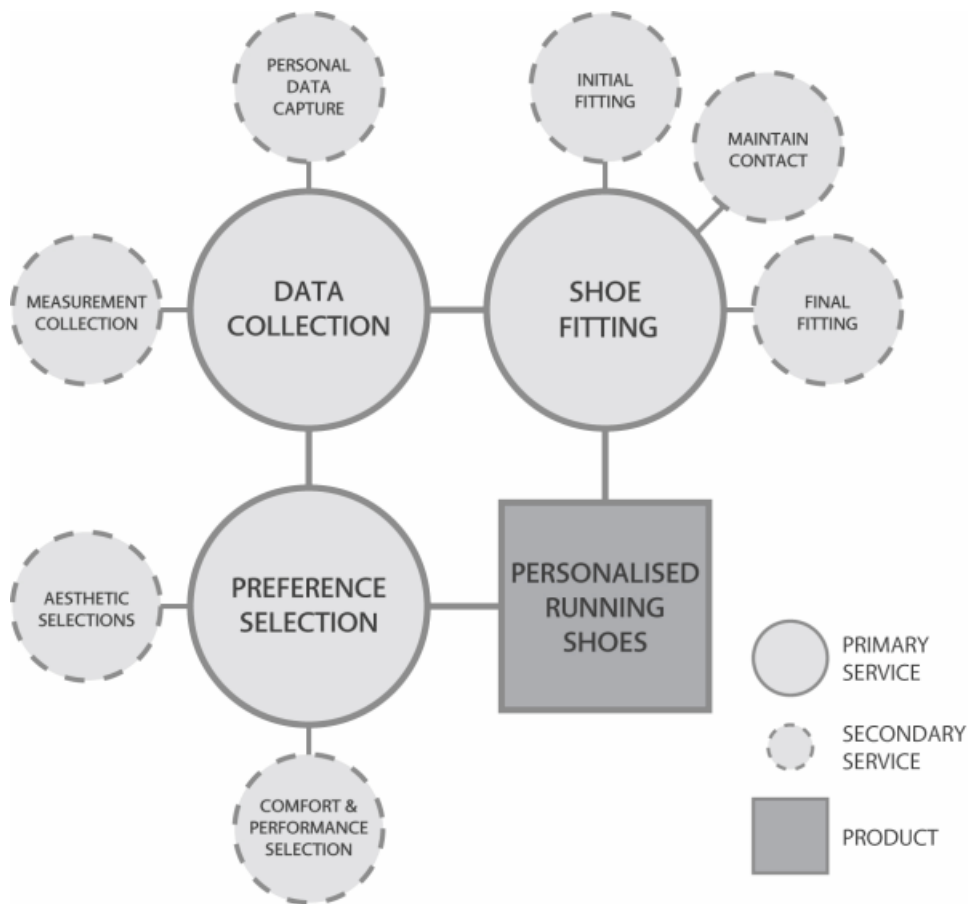


Figure 2: Service Model for Delivering Personalised Running Shoes

Shoe Fitting

Customers stressed the importance of trying their footwear before purchase (Head, et al., 2010; Mintel Marketing Intelligence, 2010). Fitting would be split into two stages: an initial fitting of a configurable shoe that could be prepared in store and, once the customer had committed, a final fitting of the personalised footwear. Maintaining a relationship with the customer during this period was considered essential, ensuring they felt valued and minimising any regrets they may have about their purchase (Yessin, 2008; Herd, Bardill & Karamanoglu, 2007).

After considering the different services required, accountability for their delivery was considered (see table 3). The practicality of capturing the measurements and fitting of the shoes requires a store assistant. The primary responsibility for all the other tasks was assigned to the toolkit, enabling easy data capture for the provider and privacy, where required, for the consumer. A store assistant would be available to alleviate any uncertainty that the customer experienced at any stage. Figure 3 illustrates a potential in store process.

Table 3: Service Responsibilities for Delivering Personalised Running Shoes

PRIMARY SERVICE	SECONDARY SERVICE	PRIMARY RESPONSIBILITY
DATA COLLECTION	Personal data capture	<i>Toolkit</i>
	Measurement collection	<i>Store Assistant</i>
PREFERENCE SELECTIONS	Comfort & Performance selections	<i>Toolkit</i>
	Aesthetic selections	<i>Toolkit</i>
SHOE FITTING	Initial fitting	<i>Store Assistant</i>
	Maintain Contact	<i>Store Assistant</i>
	Final fitting	<i>Store Assistant</i>

Product Concept

A basic personalised running shoe concept (see figure 4) was developed with consultation from researchers in additive manufacturing to ensure that production was feasible and cost-effective (Toon, et al., 2008; Hague, Campbell & Dickens, 2003). The biomechanics and anthropometry to define the measurements required to specify such a product were also identified on the basis of the work of other researchers on the project (Salles & Gyi, 2010). Outlined in the diagram are the different aspects of the shoe concept and the information required from the consumer to be able to specify this concept, classified into three different categories; questions (Q), measurements (M) and choices (C). The shoe offers a mix of modular choices: the midsole, uppers and colours and personalisation: the insole and midsole. This is a cost-effective concept that offers the potential for improved fit, support and performance as compared to current standard running shoes.

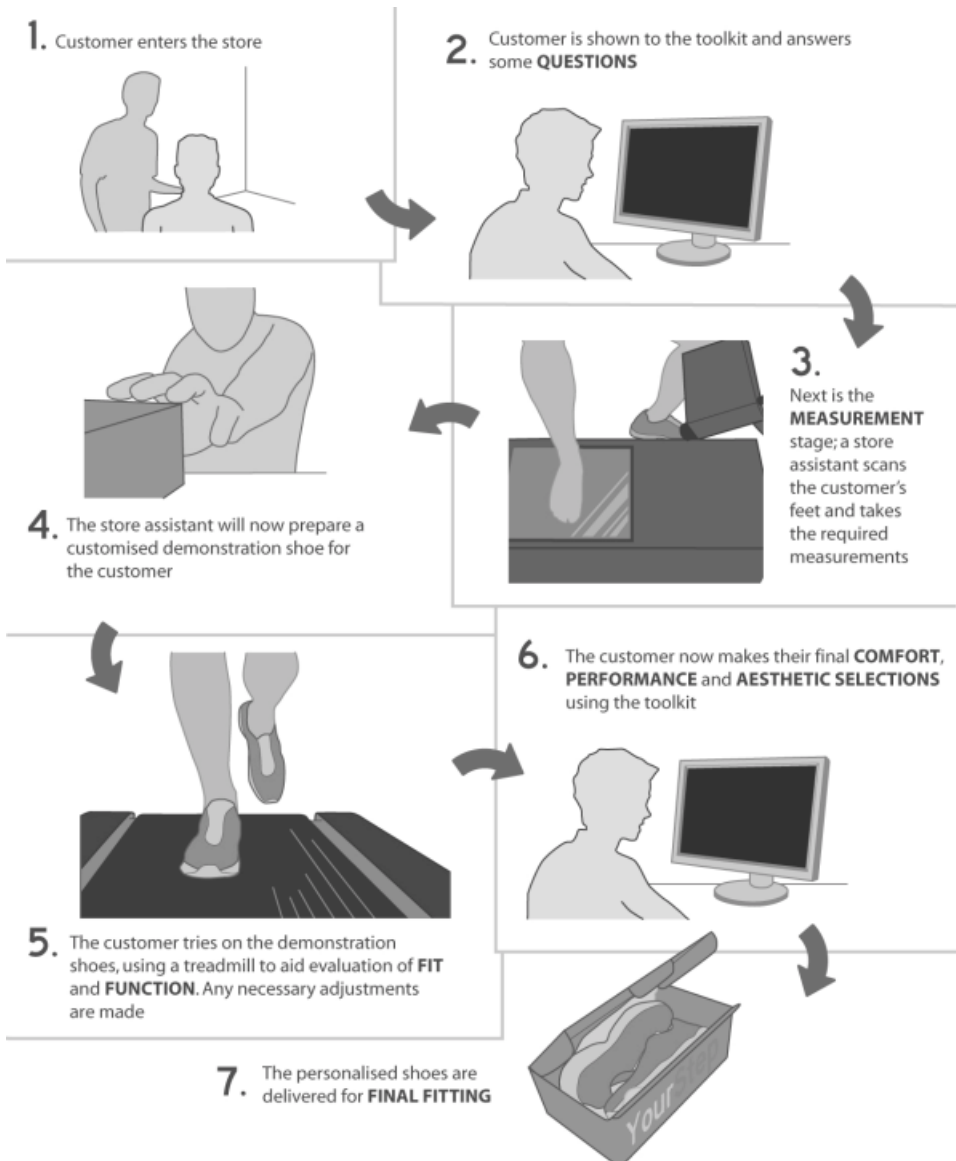


Figure 3: Potential in Store Process for Delivering Personalised Running Shoes

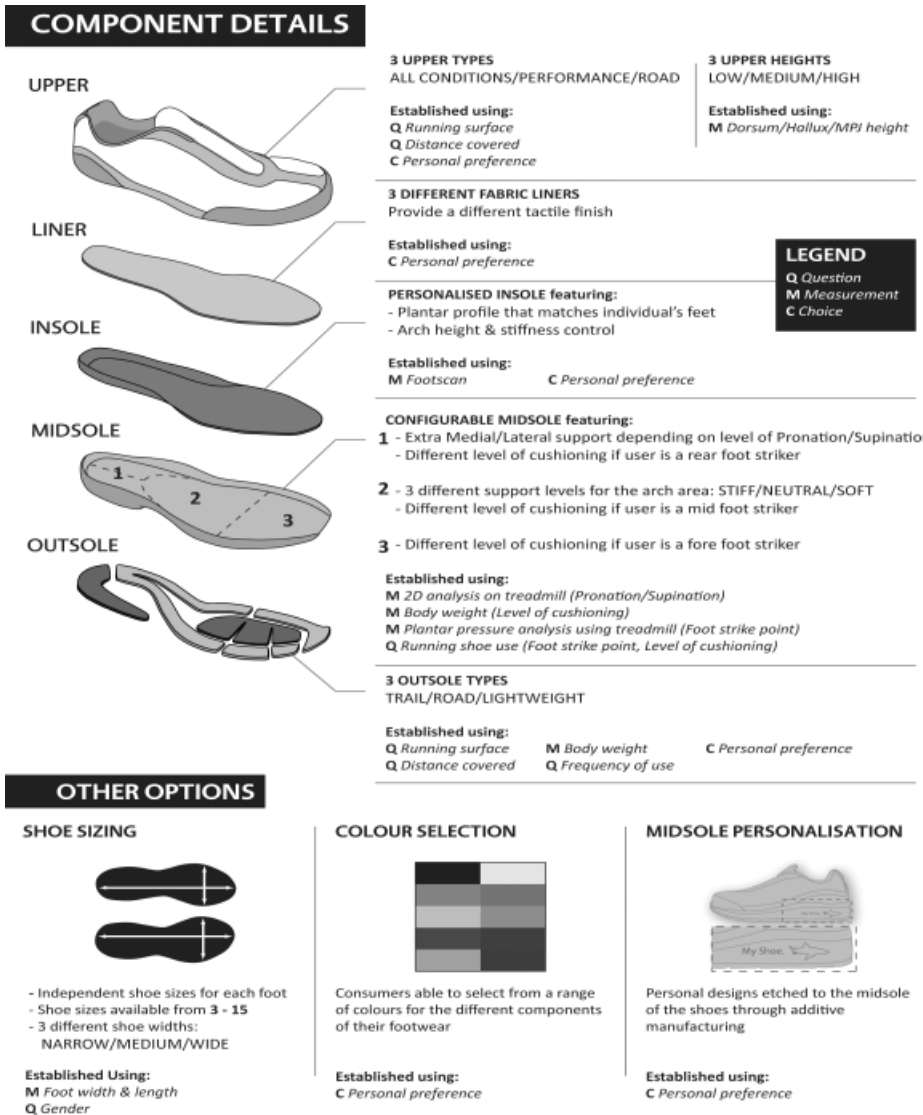


Figure 4: Personalised Running Shoe Concept

Developing the Toolkit

With a service framework and product concept defined the toolkit could be developed. Outlined in this section is a summary of the process.

Defining Content and Structure

The information required from the customer to specify the product was organised into the relevant sections of the framework (see table 4) and an interactive flow diagram was developed detailing the data collection process. After informal analysis by the research team, two important additions were made at this stage:

- Measurement information provided after personal data capture: the customer may wish to understand the measurement process before they progress.
- Information to occupy customer when idle: during the initial fitting the customer may be unoccupied as the store assistant prepares the shoe. The toolkit should provide information regarding the service/running shoes, potentially increasing their knowledge in the field and leading to better decisions.

The final structure of the toolkit is shown in figure 5.

Table 4: Required Customer Data for Personalised Running Shoe Concept Categorised by Service

SERVICE	DATA COLLECTION		PREFERENCE SELECTIONS	
	Personal Data Capture	Measurement Collection	Comfort & Performance Selections	Aesthetic Selections
RESPONSIBILITY	<i>Toolkit</i>	<i>Store Assistant</i>	<i>Toolkit</i>	<i>Toolkit</i>
INFORMATION REQUIRED	Q Running surface Q Distance covered Q Gender Q Running shoe use Q Running surface Q Frequency of use	M Dorsum height M Hallux height M MPJ height M Foot scan M 2D analysis M Body weight M Plantar pressure M Foot width & length	C Upper type C Outsole type	C Colour selection C Midsole personalisation

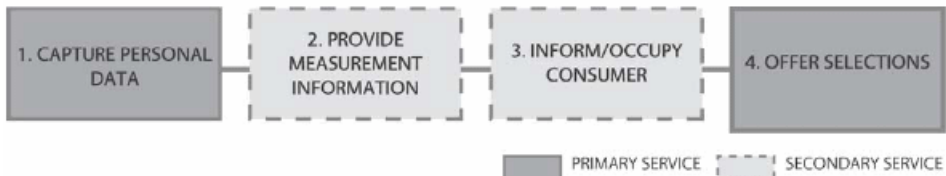


Figure 5: Running Shoe Personalisation Toolkit Structure

Navigation Style

It was important that all the required data was captured by the toolkit, because of this a procedural rule navigation system was chosen for the overall toolkit; the user could not move forward without making a selection. Once they had made that decision they were able to go back and change their input at a later point, before they submitted, if they wished.

Within the aesthetic selections decision-rule-based navigation systems were more desirable as they encouraged creativity, allowing users to select options they wanted, in whichever order. The shoe could still be produced without all the selections being made; a warning message would ensure they were finished.

Development Process and Software

Development was iterative with the prototypes tested informally, often by people unfamiliar with the project, ensuring development retained the appropriate focus.

The toolkit needed to be easy to understand and use. Guidelines in interaction, human centered, experience and usability design were consulted during the toolkit development (Moggridge, 2007; Krug, 2006; Lazar, 2006; Benyon, Turner & Turner, 2005; Rogol & Piller, 2004; International Standards Office, 2002; Nielsen & Tahir, 2002; Raskin, 2000) to ensure a toolkit that was consistent, well structured and enjoyable to use.

The content and graphics for the toolkit were created using Adobe Illustrator and then imported into Adobe Flash where interactivity was added using Flash's native scripting language, Actionscript 2.0. The toolkit was developed so that all information inputted by the user was saved to an XML file. To enable this, an Apache Server was installed alongside PHP.

Theme and Brand

A strong, consistent theme was important to the success of the toolkit and the service. A colour scheme was selected with the aid of Adobe Kuler and research on colour utilisation within a purchasing environment (Middlestadt, 1990; Bellizzi, Crowley & Hasty, 1983). The intention was to select colours neither strongly masculine nor feminine. 'YourStep' was selected as the service name after an informal brainstorm within the Design Ergonomics research group at Loughborough University because it was felt that it strongly represented the individuality of the consumers with regards to their locomotion.

The YourStep Toolkit

The final result of the development process was the YourStep toolkit, designed to deliver an enjoyable, satisfying experience for consumers wishing to personalise their own running shoes. Figure 6 provides an annotated screen shot of the layout for the main screen of the toolkit, table 5 details the different components identified in this screen shot.



Figure 6: Layout of Main Screen for Toolkit

Table 5: Legend for Toolkit Layout

NO.	DESCRIPTION	INFORMATION
1.	YourStep logo	<i>Defines identity of service, clicking will return user to 'homepage'.</i>
2.	Navigation menu	<i>Indicates current section of service, and position within that section. Can be used to navigate between and within sections.</i>
3.	Background image	<i>This changes according to the user's selections e.g. if they select that they run on road, an open road image appears.</i>
4.	'Start Again' button	<i>Takes the user to back to the start, data is lost.</i>
5.	'Save & Exit' feature	<i>Allows the user to save their progress for resumption at a more suitable time and, potentially, location.</i>
6.	Information button	<i>Provides information regarding the content displayed on the data collection space</i>
7.	Data collection space	<i>The main interaction point for the consumer; all questions, choices and information are displayed here</i>
8.	Feedback button	<i>Users can submit comments, problems and ideas regarding the service</i>

These components remain throughout the majority of the customer's use of the toolkit. Some are essential: the navigation menu allows the user to easily identify their current stage in the process and navigate to required content. The information button provides the initial point of reference if the user is experiencing any doubts. Others aim to enhance the user's experi-

ence, e.g. the intention of changing the background image is to make the user feel that the service is being personalised to them. The feedback button enables the user to directly contribute towards the improvement of the service.

Main Sections

Questions

A screenshot from the ‘Question’ section is shown in figure 6. The customer is provided with six questions, targeted to collect the required personal data on the user’s running shoe preferences.

Measure

In this section the user can retrieve information on the measurements that will be taken before they choose to proceed (see figure 7).

Explore

The user is presented with the model of a shoe that can be manipulated to reveal different information about their individual personalised footwear (see figure 8). This section was developed to occupy the customer as they wait for footwear to be prepared for fitting.

Define

The ‘Define’ section is where the user is presented with the range of options for selection. They are split into three sections: the comfort and performance options (see figure 9), the colour selection section (see figure 10), and the midsole personalisation screen (see figure 11). Within the colour selection section tools have been added to aid the user: the gallery (see figure 12) and the random colour and colour guidance features.

The gallery provides a range of shoes coloured by peers that the user can select or modify for themselves. Clicking the ‘Random Colours’ button on the main design screen automatically colours the shoe model; people who are short of time or who do not place a priority on the aesthetics of their footwear may find this a useful feature. The colour guidance function restricts the colour selections for the shoe, allowing only complementary colours to be selected, with the intention of minimising the regret a consumer may experience post purchase.



Figures 7 & 8: Measurement Information (l) & the 'Explore' Section (r)



Figures 9 & 10: Outsole Choice in the 'Define' Section (l) & the Colour Selection Screen (r)



Figures 11 & 12: The Midsole Personalisation Screen and (l) The 'Inspiration Gallery' (r)

Testing

The main aim during the testing phase was to test and evaluate a prototype of the toolkit, in order to outline and define further development.

Objectives

To achieve this aim a set of objectives were identified:

- To assess the usability of the toolkit
- To assess the visual components of the toolkit e.g. layout, colours, image quality
- To assess the functionality of the toolkit e.g. does the toolkit perform its tasks effectively?
- To assess the overall experience of using the toolkit

Testing of the toolkit was split into four different categories:

- **Heuristic Evaluation:** inspection of the toolkit's usability by postgraduate students studying interaction design.
- **Expert testing:** professionals in the field of sportswear, interaction and industrial design assess the toolkit design, providing response via tailored questionnaires.
- **Laboratory testing:** runners and non-runners completing tasks under supervision, simulating a purchase environment, with semi-structured interviews conducted after.
- **Online testing:** large sample data collection exercise using a web hosted version of the toolkit and questionnaire.

These were carried out sequentially, the first three types of evaluation were formative, allowing for updates to the toolkit between each test. The final test session, the online testing, was summative and the key results are described below.

Methodology for Online Testing

The toolkit was hosted on the internet (www.yourstep.co.uk) so that it could be accessed from anywhere. The toolkit remained virtually the same as the off-line version; the difference being that a login screen with a Captcha, an automated challenge-response test, was added to protect against unwanted users. Links to the survey were added at the bottom of the page and end of the toolkit, to maximise the number of users that completed the survey, and an error submission form was added so that users could quickly report any problems.

Participants followed a link to a website with an introduction to the toolkit detailing how it would work as part of a service, hosted using Google Sites (see figure 13). From here it was requested that they use the toolkit from start to finish, saving their profile at the end; this provided valuable information on their running shoe use and aesthetic and comfort/performance preferences. During the session the participants' toolkit use was monitored using web analytics (web logfiles, page tagging). Once finished with the toolkit they completed a survey hosted on the introduction site.



Figure 13: The YourStep Introduction & Survey Site

Thirty-seven statements with Likert scales were used in the survey, covering the different objectives of the testing: usability, visual aspects and communication, functionality and the overall experience. Positive and negative statements were employed to minimise fatigue and pattern answering (Brace, 2008). Space for qualitative feedback was provided at the end of each section, allowing users to submit any important additional feedback. The survey was designed with reference to a series of industry standard interaction surveys (Tullis & Albert, 2008); examples include the System Usability Scale (SUS), the Computer System Usability Questionnaire (CSUQ) and the Questionnaire for User Interface Satisfaction (QUIS). As it was intended that the session should take no longer than 30 minutes, to encourage participation, session duration was also monitored.

Participants

As of the 24th of January 2011, 131 people had completed the survey, around 22% of all that followed the link. Of the 131 participants that completed the survey in total, 76 were males and 55 females (see table 6). Nearly three-quarters of the participants were between 18 and 35. These age ranges match with those outlined in the research as most likely to be interested in footwear personalisation (Head, et al., 2010). Participants were drawn predominantly from the United Kingdom (76.3%) with just under 7% from the United States. The remaining participants came from 15 other countries spread over five different continents. 58% of participants were based in higher education, at university, with 30.5% undergraduate students.

Table 6: Online Testing Participants

AGE GROUP	Male	Female	Total	% Age of Sample
18-25	35	20	55	42.0
26-35	23	20	43	32.8
36-45	10	9	19	14.5
46-55	6	5	11	8.4
56-65	2	1	3	2.3
<i>Overall</i>	<i>76</i>	<i>55</i>	<i>131</i>	<i>100.0</i>

Analysis of the Findings

In this section the key findings with respect to the outlined objectives are detailed.

Usability

Table 7 shows the results for the key usability statements. The majority of participants found the toolkit easy to use, clear and well organised. Most also felt comfortable using the service and disagreed with the statement that the service was too inconsistent to use. The comfort rating may have been influenced by where and when they completed the survey, testing in an in store environment may deliver different results.

Table 7: Usability Statement Answers

STATEMENT	ANSWERS (%)				
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I thought the service was easy to use	0.8	0.8	5.3	51.1	42.0
I felt comfortable using this service	0.8	2.3	8.4	51.1	37.4
I found the sequence of screens clear and well organised	0.0	2.3	6.1	51.1	40.5
I thought the service was too inconsistent to use	25.2	58.8	8.4	3.8	3.8

Visual Aspects and Communication

Table 8 shows that the majority of participants felt the toolkit was attractive. Although a large number of participants liked the colours used in the presentation, nearly 25% were unsure or disliked the colours. This doesn't appear to be related to gender, a similar number of participants from each gender provided neutral or negative results. Most of those that chose the neutral statement were between 18 to 35 year old. Increasing the sample size and testing alternative colour schemes is necessary. The majority of participants, 83.2% felt that the service made their progress clear.

Table 8: Visual Aspects and Communication Statement Answers

STATEMENT	ANSWERS (%)				
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
It is an attractive looking service	0.8	3.8	7.6	55.7	32.1
I liked the colours used in the presentation	0.0	5.3	17.6	55.0	22.1
The service made my progress clear	0.8	2.3	13.7	51.1	32.1

Functionality

The results for the functionality statements are presented in table 9. Nearly a third of participants felt they would have liked more help with decisions; despite the help being there some participants need to interact with someone, this was confirmed by some of the additional comments. This help was not necessarily desired from a technical person, e.g. a store assistant, nearly three-quarters of the participants were happy without them. Further development is required on integrating peer involvement more effectively. This additional help appears more desired than required; almost three quarters of the participants easily located the information necessary to facilitate their decision-making.

Over a third of the participants were either unsure or unhappy with the functions and capabilities that the service provided. The additional comments revealed that participants desired further comfort and performance options and improved aesthetic options.

Concentrating on the different sections, the majority of participants felt that they understood why they were answering the questions and found them easy to answer.

Many of the participants were unsure as to whether the 'Explore' section was useful or easy to use; it is possible that without the context of the whole service, participants may have not fully understood the 'Explore' section. Therefore, testing of the toolkit as a part of a complete service is desirable.

Colouring the shoes was considered to an easy process by the majority of participants, however nearly 20% were unsure or found it a difficult process; comments show that it could be a more intuitive process. 41.2% of participants could not colour the shoes as they would have liked to; a number seeking a more subtle range of colours.

The colour guidance and gallery features may require additional development, large percentages of participants were unsure as to whether they were useful features (42.7% and 33.6% respectively). This may be because the features were not used but also because of the wording of the questionnaire, it was not obvious what these features were. Over a third of the participants were unsure or did not think the midsole design feature was useful; one participant stated that it was too easy to produce a bad result. Further development is required to refine this feature.

Table 9: Functionality Statement Answers

STATEMENT	ANSWERS (%)					
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Blank
I would have liked more help with decisions	3.1	43.5	20.6	25.2	5.3	2.3
I think I would need the support of a technical person to use this service	34.4	39.7	11.5	10.7	3.1	0.8
This service has all the functions and capabilities I wish for	3.1	13	19.8	52.7	9.9	1.5
It was easy to find the information I needed to make decisions	0.8	2.3	19.8	58.8	14.5	3.8
I am satisfied with the different type of shoe upper choices	4.6	8.4	21.4	51.9	11.5	2.3
I am satisfied with the different type of shoe outsole choices	3.8	6.9	19.8	55	12.2	2.3
The questions were easy to answer	0	1.5	6.9	67.2	22.9	1.5
I understood why I was answering the questions	0	8.4	6.1	63.4	21.4	0.8
The 'Explore' section was easy to use	0	1.5	23.7	55.7	16.8	2.3
The 'Explore' section was useful	0.8	1.5	29.8	52.7	13	2.3
Colouring the shoes was an easy process	3.1	8.4	8.4	51.9	27.5	0.8
I was able to colour the shoes as I wanted	5.3	20.6	15.3	40.5	17.6	0.8
The colour guidance feature was useful	2.3	9.2	42.7	32.1	12.2	1.5
I found the gallery easy to use	0	5.3	32.1	49.6	11.5	1.5
The gallery section was useful	0	5.3	33.6	46.6	11.5	3.1
It was easy to personalise the midsole with my design	0	7.6	22.1	46.6	22.9	0.8
I found the midsole design features useful	2.3	9.2	27.5	43.5	14.5	3.1

Overall Experience

The majority of participants were satisfied with the service and how long they spent on the toolkit. This may be due in part to the experience delivered; most thought it was an engaging and fun experience. A large number of these participants, around 75%, were interested in using this service to purchase running shoes and recommending it to a friend. For both statements nearly 20% of participants were unsure; this may be because there are elements of the service missing and, most importantly, no product.

The results indicate that the toolkit was easy to use and delivered an enjoyable experience. The aesthetic options require further development; the colour selections need refining and the midsole section needs explaining more clearly to participants. The random colours, colour guidance and gallery features could all be advertised more clearly; some of the issues participants experienced with colour selection may have been avoided if they used these features.

Testing the toolkit as part of an in store service, with an assistant taking measurements and fitting shoes is a desirable next step. This will provide a better indication of how comfortable the participants feel using the toolkit and the additional help they require. Evaluating the ‘Explore’ section in this context will also provide a more accurate reflection of its suitability as part of a running shoe personalisation process.

Table 10: Overall Experience Answers

STATEMENT	ANSWERS (%)				
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I would be interested in using this service to purchase running shoes	3.1	9.2	19.1	45	23.7
I would recommend this service to a friend	0.8	4.6	18.3	50.4	26
Overall, I am satisfied with this service	0.8	2.3	11.5	64.1	21.4
This service is fun to use	0.8	1.5	15.3	52.7	29.8
I found using this service an engaging experience	0.8	3.1	8.4	69.5	18.3
I am satisfied with the time it took to use this service	0	0.8	9.9	61.1	28.2

Limitations

There were limitations to the results found during this testing. The homogeneity of the participants means findings should not be taken as being representative of the whole market. Instead they provide a useful insight of a select group of users’ opinions of the YourStep toolkit. No help guide was provided to using the toolkit; some participants may have struggled to locate certain aspects of the toolkit, resulting in increased percentages of neutral selections.

Conclusion

When designing the YourStep toolkit the aim was to develop a collaborative design tool that satisfied the needs of those who wanted to personalise their running shoes, addressing the perceived gap in the market. The toolkit was designed with a focus on the comfort and fit of the footwear, the most important aspects to consumers (Head, et al., 2009; Marti, 1989; Collazzo, 1988), and as part of an in store process, allowing the consumer to try on the shoes and establish a physical and emotional bond.

The level of interest for using such a service was high amongst participants and test results were positive with regards to the usability, visual aspects and the design of the experience; the participants finding the toolkit well organised, attractive, consistent, and easy to use, lending to an enjoyable, engaging experience. The results were more mixed for the functionality, participants were unsure about some of the features and desired more comfort and performance and aesthetic choices; a more effective assessment of the functionality is desired. The automatic capture of the users' profile data during testing provides information to improve the toolkit and demonstrates the ease with which a provider can obtain feedback on their consumers' requirements, ensuring they are delivering what is desired.

Testing within an in store context will provide a more accurate reflection of the suitability of the toolkit; some consumers found it hard to provide an opinion on functions taken out of context. Concurrently, research has been, and is being, undertaken within the Elite to High Street project (Salles & Gyi, 2010; Gyi, Salles & Porter, 2008; Toon, et al., 2009) concerning the most appropriate way to implement such a service.

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About the Authors

Matthew Head

Matthew Head is a PhD researcher in the Design Ergonomics Research Group at Loughborough University. He studied Product Design and Innovation at the University of Portsmouth, graduating with First Class Honours, and joined the Elite to High Street project in 2008. This project investigates the design of personalised sports footwear and Matthew's research focuses on the exploration of the personalisation process for running shoes within the retail environment.

Dr. C. Samantha Porter

Dr. Samantha Porter is a senior lecturer at Loughborough University. Her background is in ergonomics, applied psychology and design ergonomics. Her research reflects the breadth of her interests; these include product pleasure, tools and methods for designing for emotion, the design of the person/product interface of medical/medical related products and personalisation and product attachment.

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