Blinkered Views of Out-Group Mobile Phone Usage: Moving Towards Less Stereotyping of "Others"

Isabella M. Venter
University of the Western Cape,
Computer Science, Private Bag X17
Bellville, 7535
+27 21 959 3010,
iventer@uwc.ac.za

Rénette J. Blignaut
University of the Western Cape,
Statistics, Private Bag X17
Bellville, 7535
+27 21 959 3039,
rblignaut@uwc.ac.za

Karen V. Renaud
University of Glasgow
School of Computing Science
18 Lilybank Gardens, Glasgow
+44 141 330 2052,
karen.renaud@glasgow.ac.uk

ABSTRACT
Trainee designers, like other humans, often see the world through their own specific lenses. This can potentially negatively impact on their designs, especially if they design with users like themselves in mind. The purpose of the study reported in this paper was to expose students to the non-homogeneity of users from different out-groups, characterised by age differences. Student researchers were tasked to explore the mobile usages and perceptions of out-group members. The younger and older mobile phone users challenged the students' preconceptions about how they would use their phones. This awareness is likely to translate into improved interface designs for users across the age spectrum.

Categories and Subject Descriptors
• Social and professional topics~CS1 • Social and professional topics~Seniors • Social and professional topics~Adolescents • *Human-centered Computing~Empirical studies in HCI*

Keywords
Age-group, stereotyping, perception, pre-conceptions, awareness, mobile phones

1. INTRODUCTION
Universities do their best to train interface designers as competently as possible, basing their training on the Human-Computer Interaction (HCI) literature. Yet there is a sociological aspect to becoming a user interface designer that we have often neglected. This is evidenced by the fact that our students tend to design products almost as if they were designing for themselves [10], or people exactly like themselves: members of their own in-group. This trend is confirmed by Lim who talks about the influence of the designers' frame of reference on their technology use and design processes [10].

 SAICSIT '15, September 28-30, 2015, Stellenbosch, South Africa © 2015 ACM. ISBN 978-1-4503-3683-3/15/09…$15.00 DOI: http://dx.doi.org/10.1145/2815782.2815804

This is perhaps because humans tend to stereotype, making judgments about out-groups [5] and clinging to them, despite evidence to the contrary [14]. Stereotyping, and associated negative perceptions of entire out-groups, can usually only be counteracted when there is meaningful interaction with *individuals* of the out-group [3] [7]. In this way pre-conceptions can be challenged and hitherto implicitly-held stereotypes reconsidered.

Stereotyping is particularly harmful when it influences interface designers, especially if this happens at a subconscious level. This is likely to mean that they are unable to empathise with, or really appreciate, the perspectives of members of other groups they also need to consider in their design. Without intervention they might well design based solely on their own perspectives. As a consequence, either they design for themselves [10], or they design for an out-group based on their uninformed perceptions of this group. Such perceptions, if they are based on stereotyping rather than personal experience, are likely to lead to sub-optimal designs.

If designers are to become more inclusive, perceptive and tolerant of those who do not see the world as they do, we need to make them more aware of the needs of out-groups – most notably people whom they consider not to belong to their own in-group [12].

One oft-stereotyped group comprises senior technology users. This group is growing in membership globally [15]. One technology where the difference in usage seems most marked is mobile phones, which seem to be used very differently by the young and the old. Industry has released a number of "senior" phones over the last few years, no doubt in response to their realisation that their market share is increasing [15]. These phones are mostly unsatisfactory, seeming to be built based on the assumption that (1) older users only want to make calls to summon assistance, and (2) they can only cope with the simplest of phones. Were the designers of currently available phones implicitly designing for some prototypical older user that they had in mind, or for some older relative they could readily bring to mind? Or were they designing for the benefit of care-givers and not the older person at all? Certainly some phones give that impression (eg. Snapfon[1], Age UK[2], Doro[3]).

[1] https://www.snapfon.com/catalog/index.php (only phone and text)

[2] http://www.ageuk.org.uk/products/mobility-and-independence-at-home/mobile-phones/ (Limited contacts, nothing else)

There are undeniably differences between young and old, but that does not mean that the younger users are superior technology users. The latest research suggests that different mental abilities peak at different ages [9]. Whereas learning is easier for young people, older people have better vocabularies and can read other people's emotions more accurately.

Assuming that older users need only basic functionality is curious, since researchers have been publishing what older mobile phone owners really want for some years now, and they do far more than just make calls [18][16]. They also want to send SMS messages, set alarms, take photos and use the Internet. A promising newcomer to the marketplace is the Fujitsu Simplistic [11], which seems to have been designed with some serious consideration for the needs of older users. Unfortunately, no studies of its acceptability to the older user group have been published and the phone itself is not available in South Africa, where our study was carried out.

The other much-maligned out-group is the teenager. Nichols and Good report that the media portrays teenagers as increasingly engaging in violent behaviour and drug taking when, in reality, these activities are decreasing year on year [12]. Shopping centres play music chosen specifically to discourage teenagers from hanging around [17] and the invention of the "sonic teenager deterrent[4]" is a sad reflection of how they are perceived by society in general. Arnett found that university students considered themselves to be subjectively different from teenagers [1]. They no longer identify with the teenagers – considering themselves an identifiable and separate group. This probably means that they, too, might be influenced by negative stereotypes of teenagers. If they need to design a phone interface to be attractive and useful to teenagers they are likely to be affected by these unfounded negative perceptions (even while they are not consciously aware of them).

Duguid and Thomas-Hunt [6] report that stereotyping cannot be reduced by telling people they are prone to seeing others differently. It just makes them defensive. People have to be made aware of their stereotyping tendencies obliquely, as a side effect of another activity. We therefore designed a study to attempt to ameliorate this situation, which is particularly damaging for user interface designers, impacting on their careers in the long run. We thus required our student researchers to interact both with an older (over 65) and a younger (teenaged) mobile phone user. They were instructed to explore their specific needs and usages of mobile phones. They were also to offer to teach their participant how to use some nominated functionality on their phone, if desired.

The student researchers' reports revealed that they were surprised by the abilities of the older people they interacted with. Their interactions with the teenagers astonished them even more – they found that they were unable to teach them anything. The teenagers were far more proficient in their usage in many ways. The student researchers' stereotypical perceptions were challenged on both fronts, exactly what we wanted to achieve with this exercise.

In this paper we describe how we designed the exercise, we present the results of our analysis of the student reports and questionnaires and our interviews with them after they had completed the exercise. We present and discuss our findings and suggest ways for educators to foster more of these kinds of inter-generational interactions in order to produce more well-rounded realistic designers in the future.

2. RESEARCH APPROACH

Third year Computer Science students were instructed to assume that a large mobile phone company employed them as interface developers. This fictitious company was supposedly keen to determine the mobile interface requirements of the over-60 and teenaged age groups. Student researchers interviewed random members of these out-groups to explore their mobile phone usage and perceptions and also to explore their needs with respect to the phones. They were told to ask whether the interviewee required assistance in using some feature on their phone, and then to show them how to use it, if applicable

Each team had to write a combined report about the individual team member's findings. This report had to inform the "company" about the challenges associated with this specific market sector and had to make recommendations on how to improve the device and/or interface. When they had completed the assignment, and had submitted their written reports, we interviewed the student teams to gauge their responses to the interviewees.

Team reports and focus group transcripts were analysed to gauge student researchers' perceptions of how the mobile phone owners used their phones, both the older and the younger.

For the rest of this report we will refer to the three stakeholders in this research as researchers (the student researchers carrying out the study), teenagers and seniors.

Quantitative data was analysed statistically using a statistical package SAS®, qualitative data (focus groups and student reports) was analysed and summarised using content analysis within a grounded theory approach [4].

The following hypotheses were tested:

- $H1_0$: The three groups all use their mobile phones in exactly the same way.
- $H1_1$: The three groups use their mobile phones differently.
- $H2_0$: Researcher pre-conceptions will remain unchanged despite this research study.
- $H2_1$: Researcher pre-conceptions about out-groups will be altered as a consequence of this research study.
- $H3_0$: Researcher exposure to out-groups will NOT raise researcher awareness.
- $H3_1$: Researcher exposure to out-groups will raise researcher awareness.

In the next section we will discuss the findings of both the quantitative and qualitative analyses.

[3] http://www.handtec.co.uk/doro-handleplus-334-sim-free-unlocked-white.html (4 numbers and SOS)

[4] http://www.neuroinnovations.com/teen_away.html

3. RESULTS

3.1 Quantitative Questionnaire Analysis

Fifty-eight student researchers each interviewed a senior (60+) and a teenaged (<20) participant who owned a mobile phone. They also completed the questionnaire themselves. Most of the student researchers were male (84%) and they interviewed mostly women, in the both the senior age group (69%) and in the teenager group (54%). Ninety-seven percent of the student researchers owned a smartphone; 90% of the teenagers and only 45% of the seniors owned a smartphone.

Table 1: Age distribution

	Researchers	Teenagers	Seniors
n	58	57	57
Mean	22.45	14.37	69.60
Std Dev	1.82	1.7	4.75
Lower 95% CL for Mean	21.97	13.92	68.34
Upper 95% CL for Mean	22.93	14.82	70.86
Min	20.00	9	60
Max	29.00	19	85

The following hypotheses will be discussed in this section:

- $H1_0$: The three groups all use their mobile phones in exactly the same way.
- $H1_1$: The three groups use their mobile phones differently.

Depicted in Tables 1-3 are the student researchers' and the interviewees' ages, their monthly expenditure and the time spent on their mobile phones (feature and smart) each day.

Table 2: Cost per month (Rand)

	Researchers	Teenagers	Seniors
n	57	54	56
Mean	155.96	130.20	174.14
Std Dev	137.71	122.85	173.71
Lower 95% CL for Mean	119.43	96.67	127.62
Upper 95% CL for Mean	192.50	163.74	220.66
Min	0	10	20
Max	600	500	730

Table 3: Mobile time per day (minutes)

	Researchers	Teenagers	Seniors
n	57	58	57
Mean	222.67	218.53	75.21
Std Dev	155.71	156.35	89.37
Lower 95% CL for Mean	181.35	177.42	51.50
Upper 95% CL for Mean	263.98	259.64	98.92
Min	2	10	5
Max	600	720	360

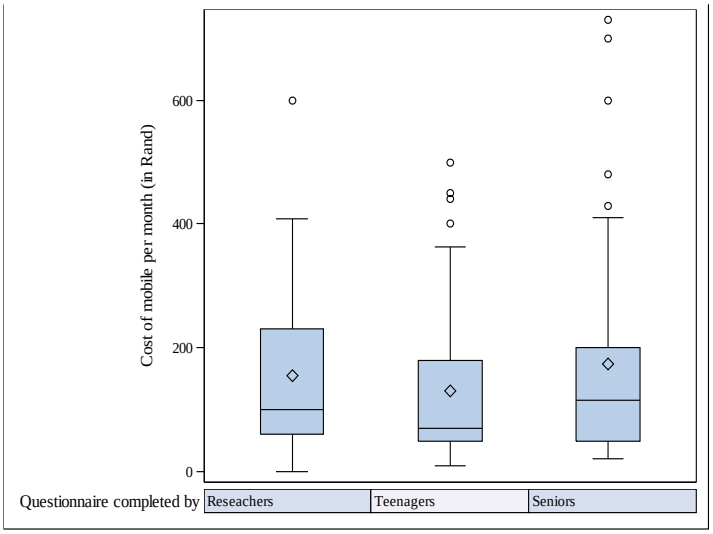

Figure 1: Cost of mobile phone (feature- and smart-phone) per month in rand

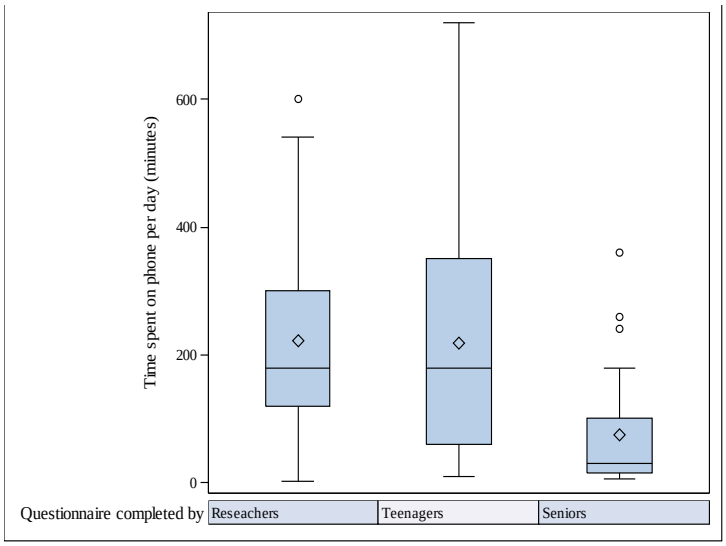

Figure 2: Time spent on phone (feature- and smart-phone) per day in minutes

Figure 1 shows that there is no significant difference between the money spent on the phone between the three groups per month (*p=0.4068*, Kruskal-Wallis= 1.80). This is an unexpected finding since one would expect that the younger participants, who spend far more time on their phones, would spend more. They are probably making use of the Wi-Fi offered free of charge at schools and universities and they also use free software such as WhatsApp to communicate. The seniors generally use SMS as opposed to WhatsApp, which is particularly expensive in South Africa.

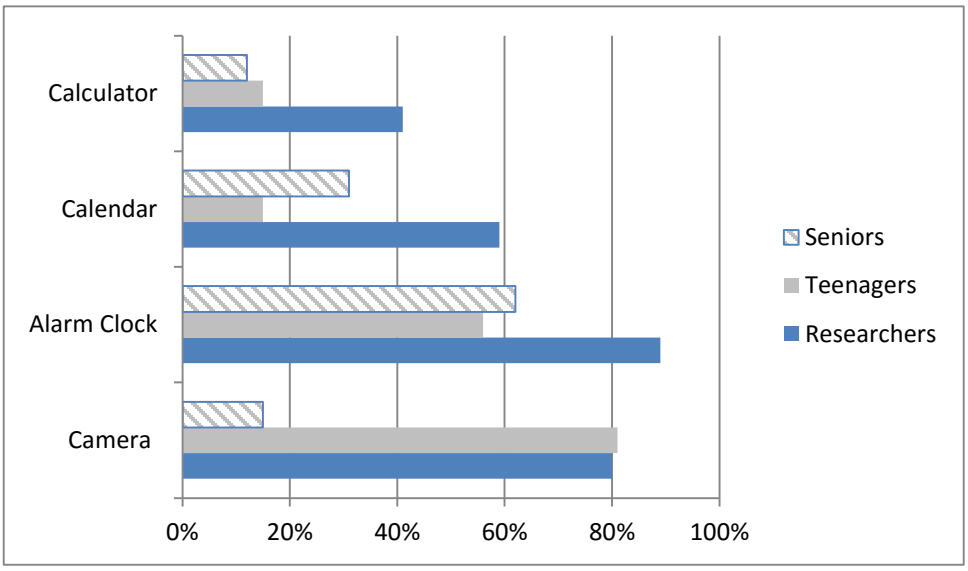

Figure 3: Usage of mobile phone functions by smart phone owners

Not surprisingly—as can be seen from Figure 2— the seniors spend significantly less time per day, less than half the time the teenagers and researchers spend on their phones (*p<0.0001*, Kruskal-Wallis=38.32).

Only 45% of the seniors reported using a smartphone (internet enabled), 90% of the teenagers and 97% of the researchers used smart phones. In Table 6 (see Appendix) the usage of only smart phone users were compared. As expected, in general, seniors use fewer of the mobile phone functions than researchers or teenagers. No significant differences were found in the usage of some of the phone functions: all three groups used their smart phones more than once a day, as a watch, for reminders, as a torch and for sending MMS's (Table 6 first section).

The seniors use their phones significantly more to make or receive calls and for sending SMS messages. When comparing smart phone usage, student researchers use the calendar, the modem, GPS, banking, and the calculator considerably more than the teenagers and seniors. Gaming, music and social networking are used significantly more often by teenagers (see Figure 3 and Figure 4 and Table 6).

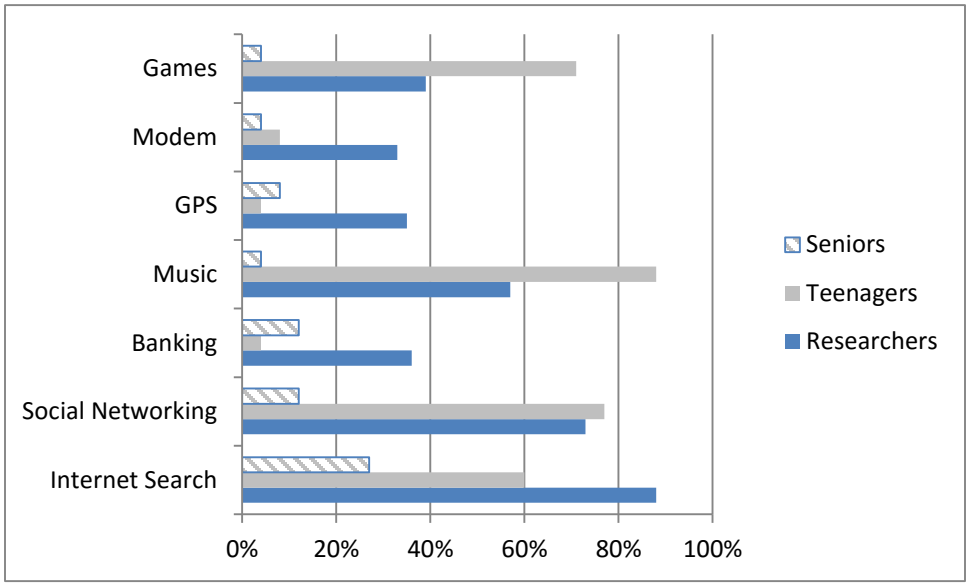

Figure 4: Usage of smart mobile phone functions requiring the Internet

With respect to how these groups felt about their phones, only one aspect is significant (see Table 4). The seniors do not seem to allow the phone to consume as much of their time as the teenagers and researchers do. None of the other perceptions mentioned in Table 4 differ significantly between the three age groups.

Table 4: Perceptions about smart phones

Perception	**Rese-archers n=56**	**Teen-agers n=52**	**Seniors n=26**	**X^2 test probability**
Confusing	14%	19%	27%	$X^2 = 7.26$, $p = 0.1227$
Essential	91%	86%	92%	$X^2 = 1.28$, $p = 0.8647$
Easy to use	91%	88%	73%	$X^2 = 6.05$, $p = 0.1958$
Frustrating	27%	29%	38%	$X^2 = 2.91$, $p = 0.5729$
Over-whelming	23%	25%	32%	$X^2 = 1.98$, $p = 0.7392$
Useful	96%	94%	92%	$X^2 = 3.67$, $p = 0.4532$
Enjoyable	79%	87%	73%	$X^2 = 2.56$, $p = 0.6342$
Time Consuming	71%	75%	23%	$X^2 = 48.24$, $p < 0.0001$*

***** *Highly significant*

Figure 2 shows that the time spent by the three groups is indeed significantly different with the younger groups spending far more time on their phones than the seniors. This is somewhat ironic. The seniors do not have deadlines nor do they have to study for exams or do homework, yet they spend less time on their phones. The reason is, perhaps, because most of the functionality they use has a cost associated with it, whereas the younger groups use free software such as WhatsApp and therefore there is no expense to throttle their phone activity. The other possibility is that the seniors have smaller social circles. Fredrickson & Carstensen (1990) found that older adults were more selective about whom they were friendly with; perhaps because they value their time more acutely and thus wish to maximise good social interactions and minimise those that could cause them pain [2] [8].

The fact that just about everyone experiences the same levels of frustration is indeed curious. The feeling might well have a different meaning to members of the different groups. The seniors might be frustrated because they struggle to master the phone whereas the teenagers may be frustrated because the phone demands their attention and they struggle to keep up with the persistent and unending summonses issued by the phone in the form of notifications.

It is thus evident from the results in this section that age-groups use their mobile phones mostly in different ways, although feelings about mobile phones did not differ to any significant extent. Monthly mobile cost was similar for the different age-groups, but time spent on mobile phones differed significantly, with the older group spending far less time using their phones.

When considering the hypotheses discussed in this section:

$H1_0$: All age-groups investigated will use their mobile phones in the same way.

$H1_1$: Age-groups investigated will use their mobile phones in different ways.

We therefore conclude that mobile phone usage was different in the age-groups investigated. We therefore reject the null hypothesis.

3.2 Qualitative Analysis

Focus group interviews and student reports were analysed and summarized using content analysis within a grounded theory approach [4]. The following hypotheses will be discussed in this section:

- $H2_0$: Researcher pre-conceptions will remain unchanged despite this research study.
- $H2_1$: Researcher pre-conceptions about out-groups will be altered as a consequence of this research study.
- $H3_0$: Researcher exposure to out-groups will NOT raise researcher awareness.
- $H3_1$: Researcher exposure to out-groups will raise researcher awareness.

In order to investigate the H2 hypotheses, the following categories during content analysis emerged: approach to technology; mobile usage; how functionality of mobile is acquired (learning); surprise findings; and physical aspects hindering mobile phone usage (see Table 5 and Figure 5).

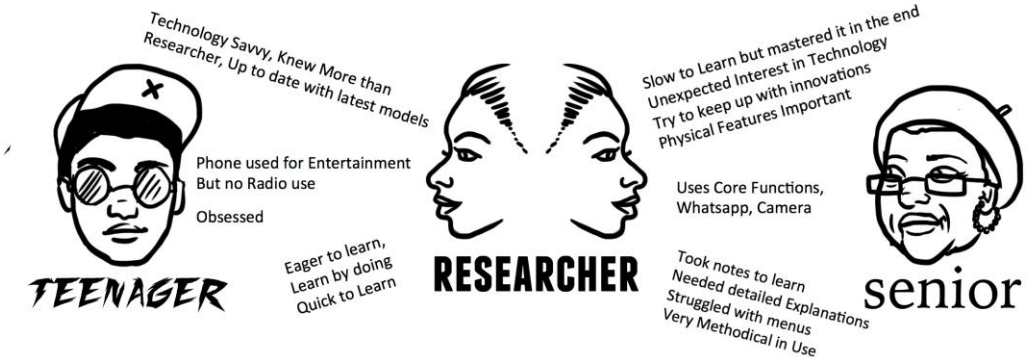

Figure 5: Researcher's perception of the "others"

Table 5: An extract of qualitative results influencing researcher pre-conceptions

$H2_1$: Researcher pre-conceptions about out-groups will be adjusted as a consequence of this research study		
Criteria	**Teenagers**	**Seniors**
Approach to technology	All about which mobile phone is the latest	Try to catch up and adopting latest innovations Used the function just as well as younger user; but needed more time to learn it
	Younger could show researchers some functions	More interested in physical features such as buttons than functionality
	Technology savvy	Did not expect their interest in mobile technology
Mobile usage	Obsessed with their phones Do not use radio and did not know a radio needs tuning	No banking used Use utilities Surprised that older user used WhatsApp Social media used but rarely Use cameras on phone
	Phone used for entertainment	Use core functions only
Learning	Eager to learn	Some participants taught themselves some of the features Struggled with menus Older users knew what they were doing, they were very methodical
	Grasp new functions easily Learn through doing	Older user took notes to remember and needed detailed explanations

Approach to Technology
Student researchers were surprised that teenagers seemed to be very technology savvy and extremely enthusiastic about their phones. Teenagers could even show the student researchers some new functions. The seniors seemed to be able to use certain functions just as well as themselves, were keen to catch up and adopt new innovations, but interested in physical features such as buttons rather than new functionality.

Mobile Phone Usage
The main focus for teenagers was access to entertainment and social interaction, whereas the seniors mainly used the basic functions such as phoning and text messaging. Teenagers were obsessed with their phone, whereas the seniors only used their phones when necessary and were more inclined to use it for synchronous conversations.

Learning
Teenagers are eager learners; grasp new functions easily and prefer to learn through doing. On the other hand, the seniors preferred step-by-step explanations and were inclined to take notes and were very methodical.

Surprise Findings
Student researchers were surprised that teenagers did not know how to tune a radio and that the seniors did not always know how to use very simple functions.

Physical Aspects Hindering Usage
The seniors pressed buttons unintentionally, had problems seeing the text and often used both hands.

The fact that student researchers recognised these differences indicates that their pre-conceptions about out-groups were altered by interacting with members of these groups. Thus we reject $H2_0$: Student pre-conceptions about out-groups will not be altered by interacting with members of out-groups; and accept $H2_1$: Student pre-conceptions about out-groups will be altered by interacting with members of out-groups.

In order to investigate the H3-hypotheses, the following categories during content analysis emerged: mobile performance; fashion item; hardware requirements; software requirements; and ability.

Mobile Performance
Teenagers expected high performance of their phones, whereas for the seniors an improved battery life was important.

Fashion Item
For the younger generation the phone is an integral part of their identity and therefore they prefer it to be fashionable.

Hardware Requirements
The younger users place great emphasis on ability to store data whereas the older generation indicated that the hardware must be readable, easy to navigate and audible.

Software Requirements
The teenagers indicated that they need more pre-loaded applications whilst the seniors preferred fewer applications on their phones and an uncluttered and easy to navigate interface. The student researchers felt that some parental control and time limitations would be necessary to limit the teenagers' exposure to unwanted influences.

Ability
The student researchers noticed a physical ability problem that older mobile phone users experienced when using their phones.

Student researchers were able to identify design improvements to mobile phones to assist these two out-groups. Therefore we accept $H3_1$ namely that student researchers' exposure to out-groups will make them as designers more aware of the needs of out-groups.

4. DISCUSSION
We now return to our hypotheses:

- We have evidence that the three groups use their phones very differently so hypothesis $H1_1$ can be supported. As discussed, the most striking difference is the amount of time spent and the much wider range of features used by the majority of the younger participants.
- The fact that student researchers recognised differences in phone usage indicates that their pre-conceptions about out-groups were altered by interacting with members of these groups we thus accept $H2_1$.
- Design improvements to the mobile phones were suggested which indicated that they student designers became more aware of the needs of out-groups after being exposed to these out-groups. We thus accept $H3_1$.

We took the students' blinkers off, and now they see other age groups in a different light, less two dimensionally, as curious and with the same needs as they themselves have. This is likely, we believe, to have a positive effect on their interface designs in future, although we did not test this and cannot report anything about this effect.

From our findings that interacting with out-groups altered the pre-conceptions of student researchers, it is evident that students are now more aware of the needs of out-groups and this should improve their interface designs for a more diverse user group. However these insights about out-groups need to be deepened—so that students realize that people do not inhabit strictly constrained groups. Groups merge and people sometimes have one leg in one group with the other leg in another. The more perceptive way of looking at this is that the changing process is a continuum rather a discrete set of categories (Figure 6). People move slowly along the continuum as they age from babyhood to seniority. No one inhabits a particular constrained and nicely marked off group for any long period of time—people move along, sometimes just because they age, and other times because of life events such as illness, education or simply because they have been around technology for long enough to be comfortable with it. An awareness of this continuum might help students to stop classifying people into out-groups. We want designers to, in effect, design for their future, present and past selves rather than only for their current selves.

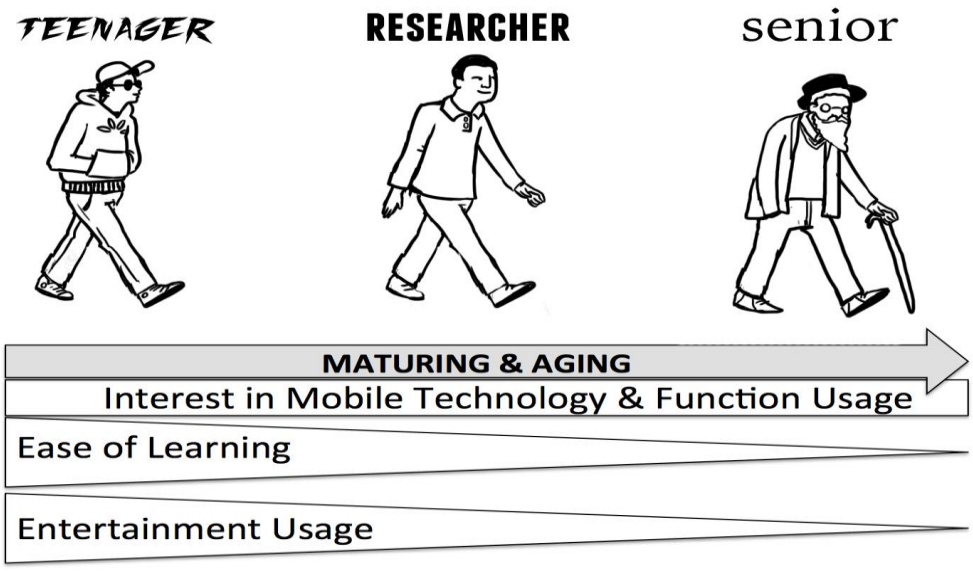

Figure 6: The realisation of the continuum rather than the fallacy of out-groups

The challenge for us, as educators, is in finding out how best to help students to come to this realisation. The study we report here is an essential first step, but we have to take them further along the journey to enlightenment and a realisation of the needs of users at all stages of the continuum. The designer should be able to put him or herself into the shoes of the people at different stages of the continuum rather than merely seeing everyone not at their specific point on the continuum as some kind of unknowable and alien out-group individual.

5. CONCLUSION

Educators have a responsibility to open their students' minds – not merely to try to give them information and expect them to make sense of it. It is far better to stretch them, to challenge their preconceptions, to help them to grow and become more mature in their own outlook. We have come up with a number of different ways of doing this, and in this paper we report on one particular strategy, calculated to help students to conquer their own tendencies to stereotype "other" groups. We believe this is essential in nurturing good designers, making the difference between adequate and superior design

ACKNOWLEDGEMENTS

Our thanks to Anja Venter for the drawings in this paper. We also thank our student researchers and anonymous participants.

6. REFERENCES

[1] Arnett, J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. . American psychologist, 55(5), 469.

[2] Carstensen, L. L., Isaacowitz, D. M., & Charles, S. T. (1999). Taking time seriously: A theory of socioemotional selectivity. American Psychologist, 54(3), 165-181.

[3] Caspi, A. (1984). Contact hypothesis and inter-age attitudes: A field study of cross-age contact. Social Psychology Quarterly, 47(1), 74-80.

[4] Corbin, J. & Strauss, A. (1990). Grounded theory research: procedures, canons, and evaluative criteria. Qualitative Sociology, 13(1), 3-21.

[5] Cuddy, A. J. & Fiske, S. T. (2002). Doddering, but dear: Process, content and function in stereotyping of elderly people. In T. Nelson, Ageism (pp. 3-26). Cambridge: MIT Press.

[6] Duguid, M. & Thomas-Hunt, M. (2015). Condoning stereotyping? How awareness of stereotyping prevalence impacts expression of stereotypes. Journal of Applied Psychology, 100 (2), 343-359 DOI: 10.1037/a0037908

[7] Erber, J. T., Etheart, M. E. & Szuchman, L. T. (1992, September). Age and forgetfulness: Perceivers' impressions of targets' capabilites. Psychology and Aging, 7(3), 479-483.

[8] Fredrickson, B. L. & Carstensen, L. L. (1990). Choosing social partners: how old age and anticipated endings make people more selective. Psychology and Aging, 5(3), 335.

[9] Hartshorne, J. & Germine, L. (2015). When Does Cognitive Functioning Peak? The Asynchronous Rise and Fall of Different Cognitive Abilities Across the Life Span Psychological Science DOI: 10.1177/0956797614567339

[10] Lim, C. S. (2010). Designing inclusive ICT products for older users: taking into account the technology generation effect. Journal of Engineering Design, 21(2-3), 189-206.

[11] Miller, M. (2014). Fujitsu stylistic s01: Unique phone offers haptic feedback. PC Mag. New York, NY, US.

[12] Newell, A. F. & Gregor, P. (2000). "User sensitive inclusive design"—in search of a new paradigm. In Proceedings on the 2000 conference on Universal Usability (pp. 39-44). ACM.

[13] Nichols, S. & Good, T. (2004). America's teenagers--myths and realities: Media images, schooling, and the social costs of careless indifference. New Jersey: Lawrence Erlbaum.

[14] Nickerson, R. S. (1998). Confirmation bias: A ubiquitous phenomenon in many guises. Review of General Psychology, 2(2), 175.

[15] PewResearch. (2014). PewResearch Global Attitudes Project. Retrieved 08 19, 2014, from www.pewglobal.org: www.pewglobal.org/2014/02/13/selected-age-break-tables/

[16] Renaud, K. V., Blignaut, R. J. & Venter, I. M. (2013). Designing mobile phone interfaces for age diversity: "One-World" versus diverse "Islands". Interact 2013. 3, pp. 1-17. Cape Town: IFIP.

[17] Southworth, M. (2005). Reinventing main street: from mall to townscape mall. Journal of Urban Design, 10(2).

[18] van Biljon, J., Renaud, K. & Van Dyk, T. (2013). Reporting an Accessibility Challenges Experienced by South Africa's Older Mobile Phone Users. The Journal of Community Informatics, 9(4).

Appendix

Table 6: Usage of smart phones

Usage	**Researchers n=56**	**Teenagers n=52**	**Seniors n=26**	**X^2 test, probability**
Use Phone More than Once a Day	98%	96%	85%	$X^2 = 8.8$, $p = 0.0673$
MMS	23%	8%	12%	$X^2 = 8.5$, $p = 0.0753$
Watch	84%	73%	69%	$X^2 = 7.2$, $p = 0.1237$
Reminders	45%	35%	41%	$X^2 = 5.2$, $p = 0.2669$
Torch	34%	23%	23%	$X^2 = 2.8$, $p = 0.5957$
Camera	80%	81%	15%	$X^2 = 44.4$, $p < 0.0001$*
Alarm Clock	89%	56%	62%	$X^2 = 18.6$, $p < 0.001$*
Calendar	59%	15%	31%	$X^2 = 25.9$, $p < 0.0001$*
Calculator	41%	15%	12%	$X^2 = 18.4$, $p < 0.001$*
Internet Search	88%	60%	27%	$X^2 = 33.6$, $p < 0.0001$*
Social Networking	73%	77%	12%	$X^2 = 41.7$, $p < 0.0001$*
Banking	36%	4%	12%	$X^2 = 35.8$, $p < 0.0001$*
Music	57%	88%	4%	$X^2 = 56.1$, $p < 0.0001$*
GPS	35%	4%	8%	$X^2 = 36.4$, $p < 0.0001$*
Modem	33%	8%	4%	$X^2 = 36.2$, $p < 0.0001$*
Games	39%	71%	4%	$X^2 = 51.4$, $p < 0.0001$*

***** *Highly significant*