## Pagers

### Introduction

This essay analyses the medium of radio-pagers for communication. Beginning with a description of the device and its history, comparisons will then be made against Crystal's (2006) seven features of speech and text. After which, observations will be made on the implications of pagers on language use (specifically *pager-speak*) and how pagers have been used in various parts of society, particularly pre-2000s America.

### How a Pager works

Pagers operate via radio-wave transmission, hence the name 'radio-pagers'. A user would input a short message via a touch-tone telephone, e-mail message from a computer, or even another pager that had transmitter capabilities. That message would be forwarded to all surrounding pagers via a radio transmitting tower, but only the intended recipient's pager would be able to decode and display the message. The recipient is alerted of the message by an audible beep (hence, the nickname 'beeper') or by vibrations (Bellis, 2021). This whole process would typically happen within the span of thirty seconds.

Pagers can be categorized into 2 groups: one-way and two-way pagers. One-way pagers only receive messages, but two-way pagers can both receive and send messages (as seen in Figures 1a and 1b).
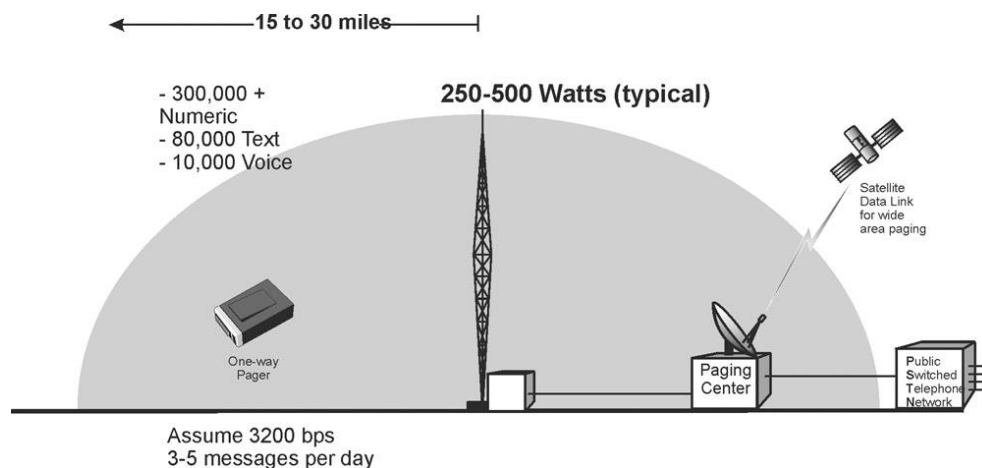


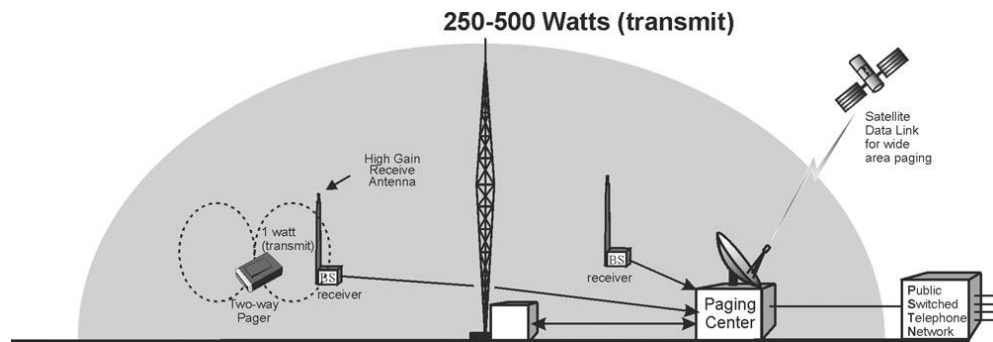*Figure 1a: One-way paging system. (Telecom Made Simple, 2008)*

*Figure 1b: Two-way paging system. (Telecom Made Simple, 2008)*

**History of "Beepers" (Spok, 2019)**

Several iterations of radio-pagers have made its waves through history. In 1950, the first patented telephone pager system was implemented at New York City's Jewish Hospital (Smith, 2003). The range of that system covered up to 40 kilometers and was considered a local-area paging system – if a pager were outside that range, no messages would be received. Up until the 1980s, pagers were primarily used in professional settings with small localities, i.e., doctors in hospitals, first responders, or Wall Street financiers. Consequently, pagers became a status symbol, worn primarily by those in certain professional fields (Dove, 2016). Once wide-area paging was invented, communication via pagers became drastically more accessible (inter-city and inter-state), and the reach of pagers extended from professional to personal use (Spok, 2019). Eventually, the pager was received into popular culture as well, as evidenced by Missy Elliott's song "Beep Me 911", which included a reference to the use of pagers for communicating with a significant other (Dove, 2016). Adolescents also began to adopt the prestigious look of carrying a pager (Sims, 1988).

Before the invention of alphanumeric pagers (in the late 1990s), pagers used a seven-segment display. This placed several constraints on the type of information encodable through the pager system. Several interesting linguistic innovations were birthed from such constraints, which will be discussed later under 'Effects on Language'. Once alphanumeric two-way pagers entered the scene, users could communicate back and forth directly from their device, with greater ability to type whole sentences. This greatly expanded the communication methods of pager users, allowing for more socially interactive communication.

**Comparisons with Speech and Text**

An analysis on the characteristics of pager communication will be performed using Crystal's (2006) seven features of speech and text.

| Speech like | Text like |
| --- | --- |
| Time-bound* | Space-bound |
| Spontaneous* | Contrived |
| Face-to-face | Visually decontextualized |
| Loosely structured | Elaborately structured |
| Socially interactive* | Factually communicative |
| Immediately revisable | Repeatedly revisable |
| Prosodically rich | Graphically rich |

For the most part, pagers are more text-like, but certain models have allowed for speech-like interactions. All pager displays have a certain width that text must fit into, making it very space-bound. While some pagers can slide text across the screen to display longer messages, it would be impractical to send extra-long messages without sacrificing readability. The tedious nature of communicating through older pager platforms (i.e., dialing in touch-tone telephones) meant that inputting messages was a concerted effort, making pager communication very contrived. However, with the invention of alphanumeric two-way pagers, real-time conversation with another user was made somewhat spontaneous and time-bound if both were using their pagers at the same time, albeit with noticeable time-lag between production and reception of messages.

In any case, pager communication is very visually decontextualized – users have almost no way of communicating non-verbal expressions. Some users have learned to re-purpose alphanumeric letters to create basic emoticons, enabling some degree of self-expression. Apart from extra-linguistic expression, deictic expressions like "that one" or "over there" are likely avoided because it would be too ambiguous without visual context or immediate feedback. This lack of face-to-face communication naturally influences the revisability of pager communication. When creating a pager message, it is possible for the user to repeatedly revise the message for corrections or edits before sending. Interruptions in the writing process and the number of revisions would be imperceptible to the receiver.

Regarding elaborateness of structure, space constraints mean pager messages must be more succinct. Formality of writing depends on the context and the pager model. On one-way pagers, the type of information is often just a string of numbers, e.g., a phone number, or a code. On two-way pagers, more information can be included, like full sentences and greetings. Professionals likely never use contracted forms, nonsense vocabulary or slang. Most notably, for seven-segment display pagers, casual users may write in *pager-speak* – a type of writing slang that adapts the numbers on a seven-segment display to spell words or encode other meanings. The next portion of this essay will elaborate.

**Effects on Language**

*Seven-segment display*



In the late 1990s, both The New York Times and The Los Angeles Times reported on this new slang known as *pager-speak*, or *beeptalk* (Lewin, 1998; Mozingo, 1997). A great deal of linguistic innovation was observed when paging became the popular communication method among adolescents in the 1990s. Adolescents at the time mostly carried pagers using seven-segment displays that transmitted only numbers. They wanted to send informal messages in an efficient manner without needing to call each other all the time. However, alphabets were not viable in the seven-segment display, and such a constraint challenged users to generate several innovations in spelling – the use of numbers to encode additional meaning, to represent letters, and when single numbers were not sufficient to represent a letter, a combination of numbers were used.



*Pager-speak* seemed to vary across different localities. These dialectal variations manifested across different schools, social classes, ethnicities and even friendships (Lewin, 1998). Below is a table of pager codes that users would send to each other, as observed by Lewin (1998) and Mozingo (1997).

| E.g. | Code | Representation | Elaborated Meaning | Remarks |
|------|------|---------------|--------------------|---------| 
| 1. | 911 | Emergency! | Call me right now! | 911 is the police hotline in the USA. |
| 2. | 5683*8 | Love u. | I love you. | "Love u" spelt out on the telephone number pad. |
| 3. | 666 | Satan's number. | I hate you. | The devil's number. |
| 4. | 07734 / 01134 / 14 | hELLO/hEllO/hI. | Hello/Hi. | Read upside-down for a greeting. |
| 5. | 710 | OIL. | I'm out of gas. | Read upside-down. |
| 6. | 87 | Late. | I'm late. | Read upside-down. |
| 7. | 303 | Mom. | Mom. | Read sideways. |
| 8. | 2001 | - | You're way out there. | - |
| 9. | 55 | - | Let's cruise. | Code for "let's go somewhere else" |
| 10. | 66 | - | Let's hit the road. | |
| 11. | 747 | - | Let's fly. | |
| 12. | 30 | - | This is getting old. | For an adolescent, 30 represents old age. |
| 13. | 90*40I773 | gO hOME. | Go home. | Numbers used to represent alphabetical letters. |
| 14. | 8282 | 팔이팔이(Korean) | hurry hurry! | In Korean, the number sequence 8-2 are homonyms of the word "hurry". |
| 15. | 50538 | Besos (Spanish) | kisses. | Read upside down for the Spanish word for 'kisses'. |

Evidently, there were a variety of ways numbers were used to encode meaning. Some codes were to be read as alphabetical letters spelling out words (e.g. 4, 5, 7, 13, 15); some were numeric codes referencing objects, concepts and actions (e.g. 1, 3, 8, 9, 10, 11, 12). Perhaps the most notable usage of *pager-speak* was example 14 '**8282**', used by a Korean American student to encode the words "Hurry Hurry!" This innovation arose from the homonymous relationship between the pronunciations of the number sequence 8-2 (pal-i) and the word 'hurry' (ppalli) in Korean.

 These codes were context-dependent and only made sense when used in the relevant community of practice. Each community shared unique sets of linguistic inventories that often differed from other communities of users. A simple example is the difference in usage of the code **911** between teenagers and drug dealers. Adolescents use it to the dramatic effect of "Hey, call me quick!". Drug dealers use it to literally warn each other of police inbound (Moses, 1988).

**Effects on Society; Past and Present**

*Drug dealing*

The untraceable, disposable nature of pagers made it very popular for American drug dealers in the 1980s (Moses, 1988). Pagers were used to facilitate drug deals because they were difficult to

track, easy to use (TIME, 1986). A drug dealer with a pager could easily move around and communicate with their clients via public telephones, as opposed to fixed landlines. By extension, it also made their business more accessible to potential customers because of the ease in placing orders.

*Teenagers*

As a result of the uptake in pagers for drug dealing, a great dispute arose concerning the use of pagers among adolescents. It had become a symbol of prestige among teenage students, but school officials were wary of the potentially negative manifestations of such social attitudes. More than 50 school districts around the United States banned the use of pagers in schools in the late 1980s. According to Sims (1988), one US school official remarked, "How can we expect students to 'just say no to drugs' when we allow them to wear the most dominant symbol of the drug trade on their belts[?]". The prestige of owning a pager was so significant that some students even went to the lengths of wearing fake pagers to impress their peers. In that era, the original communicative value of the pager had lost its relevance, as adolescents had begun repurposing it to function as a status symbol rather than a tool for long-distance communication.

*Emergency disaster relief*

Moving on from drugs and teenagers, pagers have proven most useful in emergency disasters because of their reliability over cellular communication. Cellular phones are easily made inept during natural disasters because they rely on single cellular towers – if that cellular tower goes down, cell phones cannot transmit or receive information. Pagers are more reliable because radio waves penetrate thick walls and they operate on a network of radio towers that have overlapping broadcast ranges – even if one transmitter is down, others will continue relaying the message uninterrupted (Dolan, 2011). This is why pagers are a useful communication device for emergency responders.

**Conclusion**

Pagers have seen a wide-range of usage across various domains of society. The few that remain today have been relegated to medical professionals and first responders. Perhaps the most interesting use observed was the innovation of *pager-speak*. It strongly exemplifies the human's ability and natural inclination to generate new varieties of language, actualized by new technological developments. Case in point, smart phone technology has largely taken over the role of communication that pagers once fulfilled, and many more linguistic innovations have birthed from there. It seems we will always look for new ways to communicate ideas and express our internal states to others through every generation of communication devices.

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